

CHOICE

RECYCLING IN PRACTICE

Out of the old and
into the new

RESTRAIN THAT CHILD!

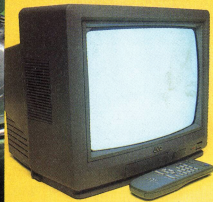
Safety in your car

INSULATION

Fibreglass vs cellulose:
the great debate



Portable televisions



'Light' beer



Sewing machines



CHOICE

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Editorial

AS SOME OF YOU will know who've filled in questionnaires for us, we regularly send out surveys asking subscribers what they thought of a particular issue of CHOICE. Many thanks to those of you who answer — your replies help us tailor the magazine to fill your needs more closely.

The analysis of our survey of the November 1992 issue shows our health insurance report satisfied most people who read it (which we're always happy to hear), but comments made by a few subscribers suggested there was some confusion as to which health insurance companies we'd looked at for the report.

We in fact surveyed all the 'open' health funds — those with unrestricted membership — in each state. We then rated them for their hospital cover and ancillary plans (dental, optical, physiotherapy, etc) and worked out the best two or three in each state for the different kinds of cover. These are the ones we listed in our *Buying Guide* on pages 16 and 17 of the November issue.

We wanted to take the hard work out of choosing a health fund by evaluating the dozens of options for you. Space also prevented us printing the details of every health plan — it would take several pages per state. However, since in many cases it was smaller health funds which made it to the *Buying Guide*, it seems some readers thought we hadn't surveyed the larger, more well known funds.

To clear up the confusion, we did include these funds in our survey — they didn't appear in our *Buying Guide* because in some states we didn't rate their plans as highly as some of those offered by smaller funds. However, as we said in November, if you'd prefer to stay with a bigger fund (because of easy access to branches, for example), or if you'd simply like more detailed information on all the health plans available in your state, we compiled a complete list of what was on offer in each state. To obtain this, simply send a large (preferably A4), self-addressed envelope with a 95 cent stamp to: **Health insurance plans, CHOICE, 57 Carrington Road, Marrickville 2204.**

Jane Mackenzie
Editor



Features**6 Recycling in practice**

Who's recycling what, and where: putting the theories into practice takes into account economic realities as well as environmental ideals. We look at the state of the art in Australia.

12 A little restraint

You wouldn't throw your child out of a window, so why risk the same kind of injuries from not having him or her properly restrained in a car? This article examines the kinds of restraint available for different age groups.

15 Home insulation

Does fibreglass give you cancer? Is cellulose a fire hazard? Can you believe anything anyone in the insulation industry tells you about any product? We present the facts you're unlikely to hear when you try to buy ceiling insulation.



Cover photo: Kent Mears

Tests**19 Light alcohol beer**

Lower-alcohol beer has finally taken off in Australia, for a variety of reasons — but does it taste as good as the 'real' stuff? We asked a panel of experts to rate 27 light beers (plus a light homebrew) for taste, and collected some interesting facts about beer in general.

31 Flued gas heaters

They're big, warm, efficient, expensive to buy and install but cheap to run — we've evaluated six of them suitable for large rooms or open-plan areas.

36 Portable televisions

Their size makes them portable — but some of them don't even have carry handles! Apart from that, though, they're a pretty good bunch of TVs.

40 Budget-priced sewing machines

There were some disappointments in this group of sewing machines under \$500, but six of them will get you sewing satisfactorily.

12**31****Departments****4 Choice Cuts**

Dental services for people on low incomes; phones for the disabled; bank tax hike; deadly pet flea rinse; whitegoods servicing; Miele prices; water filter hype.

18 The Green Page

Buses running cleaner (and cheaper) on natural gas and diesel; Eco-Design conference.

26 Consumer-in-law

\$52 000 fine for the wrong fire warning label on children's nightwear — clothing labelling *can* be enforced.

28 Drivelines

Spare part price increases; defective cars; which types of car are safest?; titbits from overseas.

46 Green Spotlight

Junk mail raises hackles again.

47 What do you know?

Test yourself with our regular consumer quiz.

26**Next issue**

Fridges, perfume, shampoo vacuum cleaners, how heating types compare, asthma management, cereals and grains, what do you know about being a green consumer?

June, July, August

Tests: Long-life light bulbs, exterior paint, electric wall ovens, are low-tar cigarettes really low-tar?, car batteries, water heaters, supermarket survey, hybrid bikes, mains drills, vacuum cleaners.

Features: Slimming programs, glues, hiring tradespeople, what it costs to get a product into the supermarkets, new hi-fi technologies, investing in property, mattresses, is the insurance dispute review scheme working?, getting appliances serviced satisfactorily, antibiotics, life insurance, warranties.



CHOICE CUTS

Dental services

TOOTHY PROBLEM

PEOPLE on low incomes aren't getting the dental care they need — because they can't afford to go privately and the wait for public hospital dental care can be 18 months or even longer.

Late last year representatives from a cross-section of welfare and consumer organisations held

a one-day conference to discuss the problems those on low incomes have getting the health care they need. As a result the Australian Council of Social Service (ACOSS) is to spearhead a campaign designed, in the first instance, to encourage the introduction of a national dental program which will include publicly subsidised dental services for holders of Health Care Cards.

The Consumers' Association supports the campaign, which will also call for the introduction of a comprehensive network of public dental services, particularly in rural and remote areas; for the improvement of preventative as well as restorative services for those on low incomes; and for better dental education and dental health training.

For more information about the campaign there's a leaflet, *Getting your teeth into health care*, available from the Australian Council of Social Service, PO Box 45, Railway Square NSW 2000.



Phone services

PHONES FOR THE DISABLED

IF you're disabled (physically, visually or aurally) you'll be pleased to know Telecom has produced a directory of specially modified payphones.

There are over 650 modified public phones around Australia with wider cabinets and lower phones to improve access for people with wheelchairs or walking

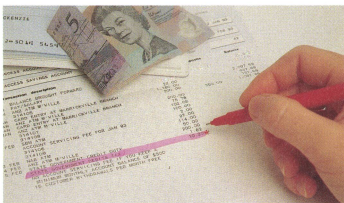
frames. Many have features such as hearing aid couplers, touchpad dialling, longer phone cords and some also have visual displays and hands-free operation.

The directory is available through community groups or free of charge from Telecom. Write to Telecom Payphone Services, 1/9 Wentworth St, Parramatta 2150.



Tax hike

AVOIDING THE BAD



THE Bank Account Debits Tax was BAD. But now in NSW and SA it's even worse. Because since January 1, 1993, these two states have been out of line with the others, by doubling the tax payable each time there's a debit entry on a bank account with a cheque facility — in fact you may be paying this tax even if you've not long got a cheque book.

The BAD tax was introduced as a federal tax in 1982, but is now set at state level. This has meant NSW and SA are able to set higher rates than other states (Victoria had planned to go the same way until last year's state election).

You're charged BAD tax on every withdrawal (not just by cheque) from a bank account with a cheque facility — even if it's called a savings account. The rates charged are as shown in the table below.

So, in NSW and SA, if you draw out \$100 from your cheque or cheque/savings account, you'll pay 70 cents in tax for the privilege. Over a year, even a medium

user could easily rack up \$100 in tax — which will be deducted automatically from the account.

WHAT CAN YOU DO?

The options are to switch to a building society or credit union, where generally you'll only pay the tax on the cheques you write (not on other withdrawals). Or to run two accounts with a bank — one with cheque access and the other without. Have payments (such as your salary) made into the account without a cheque book, and then only transfer money to the cheque account to cover the cheques you write. You will have to pay extra Financial Institutions Duty (FID) of 0.06% (0.1% in SA) when you move the money into the cheque account — but this should work out considerably less than the extra BAD tax you'd pay on transactions which don't use cheques. Better still, your employer may be able to split payment between your two accounts.

DEBITS TAX RATES

Debit amount	In NT, Queensland, Tasmania, Victoria, WA	In NSW and SA
Under \$1	No tax to pay	No tax to pay
\$1 to less than \$100	15 cents	30 cents
\$100 to less than \$500	35 cents	70 cents
\$500 to less than \$5000	75 cents	\$1.50
\$5000 to less than \$10 000	\$1.50	\$3.00
\$10 000 or more	\$2.00	\$4.00

Note: Debits Tax not levied on accounts held in the ACT.

COOL AND CRYSTAL CLEAR

"River, bore or dam, already the water has collected pesticides, herbicides, fungicides, accidental toxic spills, bacteria, parasites, blood worms, viruses, pathogenic diseases such as hepatitis, Legionnaire's disease, typhoid, dysentery, E.Coli, cholera, etc. Then due to management needs the water authorities add tonnes of aluminium sulphate, lime, chlorine, fluoride, soda ash, copper sulphate, ammonia and many more chemicals. The whole concoction is then delivered via asbestos cement pipes with lead joints, iron pipes, concrete pipes, copper pipes jointed with solder. The water will also contain dissolved natural (but not healthy) pollutants such as sodium, magnesium, manganese, calcium, mercury, arsenic, aluminium, barium, etc, plus vegetable matter from decayed leaves, etc, leaving behind a host of tannins, dyes and other compounds."

At least they left out radioactive waste, smallpox and mad cow's disease. The quote is from an advertisement that dropped into BH's letter box in Hermit Park,

Queensland. He was concerned about the hysteria this sort of advertisement tries to create.

The product in question is a water filter, of course. The advertisement goes on to say, "Only Water-Guard can give you low-cost pure drinking water anywhere, any time from any water source." And what do the two asterisks mean? "Sea and salt water excluded. For use on potable water only." (Our italics.) Hardly anywhere, any time or any source.

We feel the above advertisement is misleading. It implies tap water isn't fit for drinking and the product it's promoting can remedy that. Yet that small-print "potable water only" means the filter only works effectively on water that is already fit to drink.

As we said in our February water filters report, mains tap water in Australia is perfectly safe to drink. While a water filter might improve its taste or appearance, scare tactic marketing like this has nothing to do with the reality of either tap water quality or what the filter can do about it.



Fixed prices

MIELE PRICES — WHITER THAN WHITE?

In our February issue we reported on dishwashers. The report included prices collected in our price survey — for the MIELE G572 these varied from \$1395 to \$1659. Now, wherever you go, the price is the same: \$1599.

Shades of illegal resale price maintenance? Not exactly, because since our price survey Miele has changed the way it does business. From January 1993 it's made agents of its retailers — and re-

stricted them to taking orders at fixed prices. This price fixing doesn't contravene the law because the goods are never bought by the retailer — they're sold directly by Miele to the consumer. However, it does restrict the healthy price competition which was there before, and in a market which traditionally deals with discounted goods is an unwelcome move.

TOXIC FLEA RINSE

YOU expect a flea rinse to be toxic to fleas but not to dogs.

However, one flea rinse being used after its use-by date has resulted in the deaths of at least five dogs in the last year or so.

The product, DYZON (containing the pesticide diazinon), was used according to directions but the contents had degraded and become extremely toxic. It has since been recalled, but it does serve as a reminder to be extremely careful with agricultural and veterinary products, and to check the use-by date.

The dogs' symptoms included shaking, frothing at the mouth and eventually convulsions. Other dog owners may have noticed similar symptoms but not connected them with the flea rinse. If you still have some DYZON, it should not be used under any circumstances. Return it to your local vet.

Laws relating to the registration of agricultural and veterinary chemicals in Australia are currently being reviewed. The Consumers' Association, together with other interest groups, is very concerned about the labelling of pet care prod-

ucts, particularly when they only state the active ingredients. A chemical like diazinon might not be 'unreasonably' harmful to animals or humans in itself, but it can break down into something far more dangerous. We would like to hear from you if you have had unusual experiences with pet care products — write to Agricultural products, CHOICE, 57 Carrington Road, Marrickville 2204.



Code of practice

WHITEGOODS SERVICING

FACED with more than 1400 complaints about whitegoods in the past two years, the NSW Consumer Affairs Department and the whitegoods service industry have got together to produce a code of practice. NSW Consumer Affairs Minister Kerry Chikarovski said the code will help consumers understand the level of service they should expect and also "expose that very small proportion of unscrupulous repairers who provide what can only be described as shoddy service".

The code covers standard whitegoods such as fridges, washing machines and stoves plus other large electrical appliances like microwaves, waste disposal units and plug-in domestic air conditioners. It does not cover smaller items like vacuum cleaners, toasters and irons.

There are a number of good points in the code. The advertising guidelines are strong (and backed by the Fair Trading Act and the Trade Practices Act). A company must not make any misleading claims about the price of service

calls, 'free' quotes, business location or staff qualifications and experience. The code also includes good requirements for itemisation of accounts and access to spare parts, and a clear statement of the firm's liability for goods while in its possession.

There are several weak points, however. While it does say the company should give the client the earliest possible notice if it can't keep an appointment, this can be as little as an hour. If you've already taken the day off work, it's still not good enough.

The Code is also voluntary, so other than the parts that are supported by law, there is no obligation to abide by it.

A brochure on the code can be obtained from any NSW Department of Consumer Affairs Service Centre. We encourage all consumers to get a copy and complain to the Department of Consumer Affairs if the Code is breached. If you also tell us of any breaches, it will help us analyse how successfully the Code is working when it is reviewed next year.

RECYCLING IN PRACTICE



GRASS ROOTS ENTHUSIASM

INDIVIDUALS, girl guides, community groups — all sorts of people are into recycling. Around 170 people wrote to us in response to our request for information about local recycling: some readers are devoted to it, some are frustrated their local council won't collect a wider range of materials, others have got a scheme going themselves.

For instance, Tom Lonsdale, a vet in Riverstone, NSW, decided better use could be made of the business's large car park and established a drop-off centre for recycling of glass, aluminium and PET. The centre's been running for just over two years and has raised \$3600 for World Wildlife. "I'm trying to persuade other vets to take up the idea," says Mr Lonsdale. "The wage cost is absorbed into the business and it's good for staff morale."

It's heartening to hear of recycling schemes which provide employment at the same time. For instance, Aspley State Special School in Zillmere, Qld, established a recycling centre which provides work for 230 hours a week for 43 trainees — giving practical experience which helps them to

find work elsewhere. The school recycles a range of items including glass, paper, cardboard, wire coat hangers, aluminium and car batteries. Its workforce carries out a variety of tasks from sorting materials to crushing cans.

One hundred and fifty schools in NSW are members of SCRAP — Schools' Communities Recycling All Paper. SCRAP HQ at Holsworthy High School negotiates with paper manufacturer Visy for all the schools. They enter a contract with Visy for a guaranteed price over a year and guaranteed pick-up by Visy (except in some locations). One of the founders and now project manager, Peter Carroll, says, "We started with paper because it's 50% of the school waste stream. The next thing to look at would be composting for school gardens, as that's 30% to 40% of the waste."

SCRAP is signing up at least one school a week, spreading the net all round NSW, from the Blue Mountains to the North Coast and beyond. At the time of going to press, Orange and Dubbo were among the latest to start negotiations to join up.

A number of other organisations are

also recycling to raise funds and provide employment. The Paraplegic-Quadriplegic Association of WA, for instance, collects plastics, glass, newspapers, aluminium, car batteries and more. The Girl Guides Association of Victoria and its sisters in Queensland, SA and WA harvest corks from restaurants, clubs and private functions and sell them to factories which make cork tiles, car gaskets and floor mats. The YMCA in Wollongong collects old fridges and the like, strips them and sells the scrap steel to BHP.

There are also some supremely dedicated recycling individuals out there. Take NP of Nedlands, WA, for example. He passes engine oil, brass, aluminium and copper onto the Physics Department of the University of WA; takes glass to the local supermarket where boy scouts are running a scheme; collects hundreds of telephone books throughout the year and transports them to a recycler. He also participates in the local council's kerbside collection, leaving out plastic, steel cans and fabric, and uses kitchen scraps in the garden and tree cuttings for firewood.

Or DS from Lower Beechmont, Qld: "I

THE RECYCLING CHALLENGE

THERE'S a slight whiff of rotting rubbish and the air is filled with the deafening sounds of clinking, clanking glass and the constant hum of machinery. The visitors have been warned to wear covered shoes as protection against slivers of broken glass, and workers wear long, tough gloves to protect their hands and forearms.

This is a MRF — pronounced murf, like smurf — short for Materials Recovery Facility. In other words, it's recycling in action — in this case, sorting of plastics, glass and cans. It's one of the many ways materials are being processed and diverted back into packaging and other industries.

And it's just one of the many steps in a complex set of processes which makes recycling go round — collecting, sorting, baling, finding markets and reprocessing.

Money makes recycling go around

The nitty gritty of recycling is a far cry from the attractively designed recycled paper brochures which invite you to help save the planet. It's full of grumblings and anxieties about money — rumours that the paper market's going to collapse, resentment that some recycled plastic granule imports are undercutting local recyclers, concerns about unpredictable and fluctuating prices and so on.

In third world countries, recycling is an integral part of daily survival. But in the wealthy west, for most people, recycling only comes with concerted effort, which usually equates to dollars. Take the role of local councils, for example. It costs the ones we surveyed for this article anything from five cents to 30 cents per household per collection to run a recycling scheme. For many, this is in the form of a subsidy paid to a contractor who collects material and sells it. These businesses work on such fine margins that it wouldn't be worth their while collecting and sorting the material without being paid by the council.

As you'll see by looking at *Recycling around Australia* on page 10, there's no national approach when it comes to recycling. This means individual local

councils make their own decisions about the necessity and feasibility of getting involved in a recycling scheme. For some the answer is clear: "It's a saving against future landfill costs." Others have looked at the costs and decided against kerbside collection unless, "Markets for recognised materials are developed and sustained at a level which ensures viability of a scheme."

Still others have tried and dropped recycling. BB of north Queensland wrote to tell us of the demise of a scheme in her area. The local newspaper ran a story in May 1991 headed, "Recycling a success". A year later it showed the local contractor grinning as he accepted a cheque to buy a recycling press — a grant from the Queensland Recycling Advisory Council to the local council. But the New Year's Eve 1992 front page tells a different story — "Shire recycling service folds". The no longer smiling contractor blamed a 40% increase in freight costs.

Kerbsides for volume

Council kerbside collections tend to rake in the volumes needed to keep some sort of market going. A number of industries we spoke to gave kerbside collections a hearty stamp of approval, and for consumers, such collections are convenient. Full Recycle, recycler of HDPE (high-density polyethylene), had tried its own drop-off points but the trial proved "disastrous". As little as 3% of HDPE milk bottles were recovered in some areas. Drop-off centres seem to work better when they can receive a variety of materials.

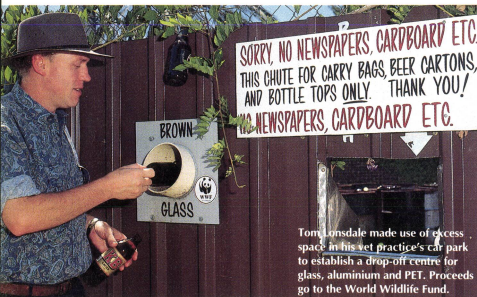
In the paper industry, the success of kerbside collections has tipped the supply balance so that some recyclers are reluctant to agree to take more waste paper — but they can still use all the cardboard they get.

Markets are vital

Recycling for recycling's sake is not an economic reality — there has to be an end use and a market.

"The recycling logos are creating havoc," a recycler of HDPE told us. "People see them and they think it implies there is a demand for the material when all it implies is that it is recyclable and if anyone wants to recycle it, they can identify the material."

In other words, don't confuse theory with practice. Market considerations often means a council decides not to collect a particular material, or even drops one it's been taking for some time.



Tom Lonsdale made use of excess space in his vet practice's car park to establish a drop-off centre for glass, aluminium and PET. Proceeds go to the World Wildlife Fund.

live in Albert Shire in the Gold Coast hinterland. At present there is no organised recycling scheme. That does not, however, stop the devoted recycler. My husband and I currently save all paper, glass, tins and plastic containers for recycling at the local dump, which has recycling bins. And we recycle all organic waste for the compost bin..."

We also heard from many other subscribers who are making an effort to reduce the garbage that leaves their homes by participating in the local council's scheme, composting organic matter and reusing everything from stockings for plant ties to using plastic bread bags in place of cling film to cover food.

Participate but don't contaminate

You're not helping anyone if you put items out for collection which aren't handled by your local council. But where there is the facility, don't let recyclables slip into the waste stream. And if you're prepared to make a few phone calls you could well find some other organisation in your area which is taking a material you'd like to recycle.

You could even follow PM of Mad-dington, WA's example. Over the last two years she has compiled a list of who'll take what in her area and she's happy to distribute the information to others. The list comprises 30 tips from where to take egg cartons, postage stamps or used motor oil to how to get started in recycling and who'll take plastic strawberry punnets.

It's also important not to 'contaminate' recyclables. Quite what a contaminant is depends on the material. Traces of food can be a hazard in paper recycling, for example, but not in glass manufacture as the heat burns it off. Glass contaminants include ceramics and white Malibu bottles, on the other hand.

Minimise your waste!

Recycling is only one of a number of approaches with the common end of minimising waste. It's necessary to save energy, avoid depleting our natural resources, and solve the problem of shrinking landfill availability. The principle of the three Rs is well worn but worth repeating: reduce the amount of garbage generated; reuse items where possible, and lastly, recycle.

A number of studies have delved into Mr and Mrs Average's garbage bin and come up with a breakdown of the contents. Figures vary slightly but those shown in Figure 1 are pretty typical.

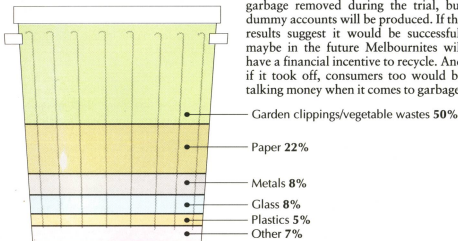


Figure1. A breakdown of the contents of the average garbage bin.

Looking at these figures, it soon becomes apparent that composting, mulching and other ways of using garden and kitchen waste are vital if waste is to be reduced. To many people this is nothing new — especially in the country. But organised community composting is a relatively new phenomenon.

For instance, Thiess Contractors has run a compost scheme for the councils of Manly, Warringah and Mosman at their Kimbriki landfill site in northern Sydney since mid 1992 and has just got one going in Brisbane. Residents bring 'green waste' — tree cuttings and other garden waste — to the tip. This is shredded, composted and sold for landscaping and other horticultural uses. Although small-scale composting can incorporate kitchen scraps, commercial operations in Australia are not yet viable. But Thiess's manager of resource recovery, Tim Kempton, believes this will change. "We will soon be able to use all green waste and eventually we'll be composting nearly all kitchen scraps," he says. Such schemes are expected to reduce the volume going to landfill by 35-50%.

The future

The rate of recycling is increasing, especially in some of the newer areas such as plastics. And more and more councils, having done the number crunching, are looking at ways to provide incentives for residents to reduce garbage. For instance, Fremantle is considering cutting garbage collections to fortnightly only, and Melbourne City Council has been involved with Monash University in devising a scheme it hopes will help it reach the Victorian Government's target of 50% waste reduction by the year 2000.

It's running a pilot 'pay by weight' garbage collection with 1000 households. No-one will have to pay to have garbage removed during the trial, but dummy accounts will be produced. If the results suggest it would be successful, maybe in the future Melbourne will have a financial incentive to recycle. And if it took off, consumers too would be talking money when it comes to garbage.

WHERE DOES IT ALL GO?

YOU'VE washed your bottles and cleaned out your baked beans tin, bundled your week's newspapers and put everything outside for the council collection. It's all been sorted into different types of material. What happens next?

The paperchase



Most of the paper that leaves your home will end up as cardboard you see every day in the supermarket. A small proportion finds its way into writing pads, envelopes and tissue products. Waste paper, particularly newsprint, is also exported to South-East Asia.

In the recycler's eye, paper comes in a number of grades which determine its usability — and the price they are prepared to pay for it. For instance, Visy, a major paper recycler which makes cardboard boxes, views paper products in the following light:

- The pulp it makes boxes from must be 70% cardboard. Cardboard is much sought after so don't ignore it when sorting your household waste — it's just what a number of recyclers want.
- The remaining 30% can be made up from a mix of waste paper including newspaper.

■ It will pay more for office white — that is, good-quality paper with little ink. It uses this for white liner board. Some companies use office white to produce recycled paper suitable for stationery.

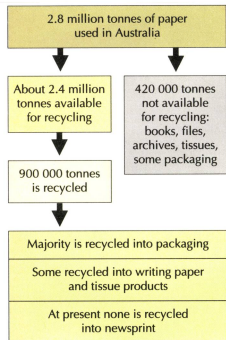
The grading is all about fibre lengths. Paper is made from fibres: the shorter the fibre the weaker but probably finer the paper product. Cardboard — which is strong — is made up of long fibres.

Visy's process involves pulping the waste in a machine a bit like a giant kitchen blender — mixing dry material with water. The slushy pulp is screened for impurities such as plastic and metal,

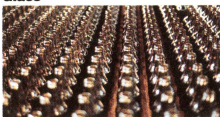
then pumped onto a conveyor belt mesh. Most of the water drains through the mesh, and the pulp goes through a series of presses and dryers to remove the rest.

There's no facility for recycling newspaper back into newspapers yet in Australia, though Australian Newsprint Mills began constructing a de-inking plant in Albury earlier this year. It's scheduled to open in December and is expected to handle 65 000 tonnes of waste paper in its first year and 130 000 by 1996. It will use newspapers and magazines and produce newsprint.

About a third of the 2.8 million tonnes of paper used each year in Australia is recycled.



Glass



Most of the old glass you set aside for recycling will end up as new glass containers. ACI, Australia's main glass container manufacturer, says on average glass sold in Australia contains 35% 'cullet'—the term used for crushed recycled glass.

It says every glass bottle contains some recycled glass. In NSW, on average a bottle contains 35% glass from old bottles, plus 20% in-house recycled glass. In 10 years time recycled content

could be as high as 90%. It's more energy-efficient to use old glass to make new—with potential savings of 20% to 35% when comparing manufacture using 100% cullet to 100% virgin raw materials.

To prepare it for use in glass making, cullet must be meticulously clean, so it goes through a lengthy decontaminating process. Magnets remove ferrous material, obvious waste is manually removed, suction removes lightweight waste, metal detectors remove metal, and the resulting mass is crushed.

Recycled glass may also end up as a portion of fibreglass and some flat glass.

Plastics



The very small proportion of household waste plastic that is recycled ends up in a variety of items including drainage pipes, garbage and compost bins, fibre for carpet and plant pots. The recovery rate for total household plastics—the majority of plastic waste—is 2.3% according to the Plastics Industry Association (PIA); at 50%, industry and commercial waste recovery is much more significant.

The PIA publishes a plastics recycling register which, as well as listing recyclers around Australia, also has an extensive directory of companies selling recycled products—from briefcases to soft ties for plants. You can contact the PIA on (03) 654 2199.

Recovering and recycling what's called 'post-consumer' plastic waste is fraught with difficulty. Although there are some uses for mixed plastics, most recycling uses demand careful sorting and cleaning. Sorting is labour intensive and therefore expensive. The economics of collecting are hampered by the relative bulk compared to weight, which affects the price obtainable—in other words, it's frustrating for a collector to spend time and money carting round a truckload of plastic when at the end of the journey, perhaps a processing plant, it will not be paid much for the goods. Most post-consumer plastics recycling in Australia centres on PET and HDPE.

PET

Many plastic soft drink bottles are PET (polyethylene terephthalate)—look out for the dimpled base in particular. Most PET bottles that do find their way to a

recycling plant are reincarnated as PET bottles again, but not for food—their use is restricted to containing household cleaners and the like. This is because of fears of contamination.

After bottles have been collected they are crushed and baled and transported to the recycling facility. There they are de-baled, hand-sorted and granulated (chopped up). Paper and dust are removed, the PET is washed, rinsed, dried and transformed into pellets which are used to make PET items such as bottles or exported for other uses such as carpet fibre.

ACI, a PET bottle manufacturer, says 22% of PET bottles are now recycled. Its recycling operation has been going for 20 months.

HDPE

Milk bottles and juice bottles made of HDPE are recycled into products such as agricultural drainage pipes and garbage and compost bins. (You can identify HDPE by a '2' on the container's base.)

HDPE bottles which contain detergent, bleach and disinfectant, on the other hand, are less desirable because often they have lids made of a different type of plastic.

One HDPE recycler we spoke to said it was stockpiling 40% of its recycled granules because it couldn't get a worthwhile price just now.

Aluminium cans



According to Comalco, one of the leading aluminium sheet producers, there's a strong chance portions of the original aluminium cans which were introduced in 1969 are still in circulation. This is because there's no limit to the number of times aluminium can be recycled.

Comalco is the only company in Australia to melt down old cans to make new ones. When the cans are melted, the lacquer and paint combine with other trace substances to form what's called flag on top of the pure aluminium, which can then be removed. Comalco sells its coiled sheets to can manufacturers. Other companies recycle cans into garden furniture, lawnmower parts and so on.

About 60% of aluminium beverage cans are recycled, so although it probably doesn't indicate on the package, the cans for sale in retail outlets would contain a fair proportion of recycled aluminium.

RECYCLING AROUND AUSTRALIA

CHOICE got in touch with 21 local councils around Australia and asked them about their recycling experiences. The picture that emerges is highly fragmented. Each council has different challenges and has taken different options to solve the common problems.

We don't pretend these answers add up to a full survey of councils, but they present a picture of what's happening around Australia. We received 19 responses from the 21 councils we approached — many thanks to all of you who took the trouble to reply.

■ Of these 19, 12 have kerbside collections for recyclable articles, five have drop-off centres and only two — Adelaide and Lismore — had no scheme running at the time, although they are planning one.

■ Most councils provide some sort of container for a kerbside collection, be it a bin, bag or crate.

■ All but two councils contract out the service.

■ All the councils with schemes collect glass; nearly all collect PET, aluminium cans and paper. Nine also collect HDPE and about four said they collect 'other plastics'. Other materials mentioned included milk cartons (two councils) and car bodies (ACT), and at least three councils collect motor oil.

■ Three councils have a composting or garden waste mulching scheme running, a couple have a trial going and four are seriously considering such a scheme.

■ **South Sydney** runs a weekly kerbside collection — householders put materials straight on the pavement and it's all sorted on the run. "It's a densely populated suburb with high-rises, lots of public housing and old-type accommodation with no provision for storage — that's one of our problems ... We're just going into compost bins but there's not a big demand because people haven't got anywhere to put the end product."

■ **Manly** council provides a bin for glass, plastics, etc, for its residents. "Participation in the area has been extremely good and that has led [us] to look at buying a Materials Recovery Facility so that the material can be sorted at the depot and got off the streets more quickly."

■ **Mosman** first used bags for its kerbside collection, but contractor collectors didn't like them because of "cuts to the body, particularly to the legs, from broken glass and sharp objects protruding from the bag...". A plastic crate has proved to be a better option. The council plans to investigate how to tackle foliage next, as it "forms a large percentage of Mosman's waste stream and is the next obvious target for attention."

■ **Fairfield** enjoys the highest ethnic diversity in Australia, with 103 languages spoken in the suburb. The council runs a weekly kerbside collection using an "industry-approved black crate". It costs \$5 per property per year to run the service — "I don't see a time when we'll make ends meet, it's a cost that people will have to bear."

■ One of the largest cities in NSW, **Lake Macquarie** covers over 90 suburbs and townships spread around a lake four times the size of Sydney Harbour. That clearly poses a problem for transportation. "In addition to recycling, which is simply a waste management strategy, we are committed to the concepts of waste minimisation and the reduction in generation of waste — for example, increasing composting participation, lobbying for improved packaging legislation, raising awareness of consumers to their buying power..."

■ **Lismore** City Council is assessing a number of options for a kerbside collection to start this year — ranging from a "basic tub" to a compartmentalised wheelie bin and special-purpose collection vehicles. To date, "The most prohibitive factor in introducing a scheme is cost. Rural councils face high transport costs that further restrict schemes which need to be subsidised from the outset."

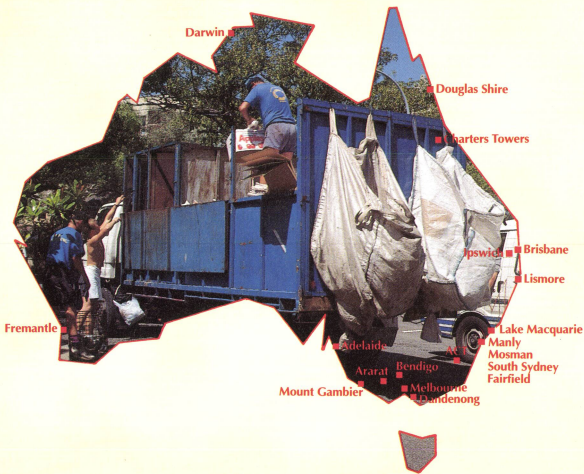
■ **Brisbane City** is planning a kerbside collection due to start this month. The scheme will cost \$6 million per year. "This will be offset by a saving of \$1.2 million per annum in waste disposal costs." It will start with newspaper, glass, steel cans, HDPE, PET, aluminium cans and liquid paperboard cartons and will include other materials "if the manufacturers are able to provide an assured market for the total tonnage available from Brisbane and are willing to pay a guaranteed floor price."

■ Located 40 km west of Brisbane, **Ipswich** City Council provides drop-off points at nine locations as well as a 'transfer station'. "Demand is minimal for recycled paper and newsprint and prices obtained for these are very low."

■ **Charters Towers** is an old western mining/cattle town 130 km west of Townsville. Its kerbside collection scheme has been running for just over a year now. End markets are paramount to collection — it collects glass, aluminium, PET and HDPE (not paper, you'll notice). It will extend the range of materials collected only when there's an established market. "The only market available for plastics in Queensland is in Brisbane. Current market prices will just cover freight costs." The market for glass is steady — with rail concessions via glass manufacturer and recycler, ACI.

■ **Douglas Shire** Council, based at Mossman, far north Queensland, serves a population of 10 000 over an area of 2386 square kilometres — about 80% of which is National Park. The council's considered but rejected a kerbside collection — "The end result would have been a significant cost to the council with very little space or cost savings being achieved at its major landfill site." A number of materials can be dropped off into recycling bins at the landfill site but transport to reprocessing plants is a problem: "As this shire does not have a rail head, double handling of materials is required to transport them to the nearest rail head (Cairns) for freight to Brisbane, where all the reprocessing plants are established — this adds to the cost."

■ Capital of the Northern Territory, **Darwin's** biggest challenge is transport — "being distant from reprocessing facilities." A recycling centre at Darwin landfill site receives cans, glass, HDPE, PET, motor oils and rags, and all uncontaminated vegetation taken to the landfill site is mulched. About 10 000 tonnes each year is used on council parks and gardens for water retention.



■ **Fremantle's** fortnightly kerbside collection of recyclables started in 1987. "Ninety five per cent (by weight) of recyclables collected has been newspaper and glass." As far as paper is concerned, it says, "If there is not a demand locally in the fibre packaging industry, it is exported." To help focus its residents' minds on waste minimisation, the council is looking at even less frequent garbage collections. It's also attempting to raise public awareness of the need to avoid or reduce packaging.

■ **Adelaide City Council:** "We don't run any recycling scheme because the area we cover is very small — 14 000 people — and we are awaiting a state government exercise which will co-ordinate the metropolitan areas ... we've been talking about this metropolitan scheme for some time, we decided this would be the best way to go..." SA has drink container deposit legislation so there aren't the cans and stubbies around like in other states.

■ **Mount Gambier** is 30 km inland, a rural city in a tight boundary. "We have the same experience as North America — everyone says they want recycling but participation rates are quite low." The scheme started last year in response to pressure from the con-

tractor and "the glass people — more from industry than from the public, but once it was made a local political issue, it was popular and they took it and ran with it." Does the scheme pay for itself? "Yes, it's a saving against future landfill costs. Our ultimate target is to decrease to the barest minimum what goes into the landfill."

■ **Ararat** council collects recyclables from 3500 homes each week. Demand for the material is increasing. "But there's no dispensation in transport costs that we're 200 km out of Melbourne. The market is the biggest problem, it's a problem in the country because there's not the volume to make it economic."

■ **Bendigo** City Council has joined forces with four other councils in its area to form the Bendigo Refuse Disposal Group which, among other duties, manages the fortnightly kerbside collections. Currently they contract the work to Sandhurst Enterprises Recycling — "A non-profit company whose predominant goal is to supply meaningful employment opportunities for the mentally disabled."

■ As well as its weekly kerbside recycling collection, **Melbourne** City council is col-

lecting kitchen scraps on a trial basis from 800 households. Between them they produce two tonnes of scraps a week, which are composted and used in park areas. The trouble with recycling, the council says, is, "There's no national strategy and it's difficult to get a national approach because each state is so different ... the markets are underdeveloped and not stable."

■ **Dandenong** deals with recyclables from a population of 59 800 people in Melbourne's metropolitan area. It collects glass, aluminium cans, PET, HDPE and paper weekly. It's one of the councils which provides recycling bags, but has problems with them being lost.

■ Having run drop-off centres for several years, the **ACT** started a 12-month trial of kerbside collections in the suburb of Kaleen last November. On a yearly basis, excluding this trial, ACT City Services has collected a variety of materials including 3000 tonnes of car bodies, 300 tonnes of cooking oil, 25 000 cubic metres of garden waste, 3500 tonnes of glass and 19 000 tonnes of paper and cardboard. "Contamination is always a problem, particularly with glass. The glass itself gets contaminated with non-bottle glass, for example pyrex, and ceramics."

a little restraint



Making sure your child is correctly restrained in the car should be as instinctive as putting your own seatbelt on.

WHAT IS THE LAW?

THE LAW varies considerably from state to state but regardless of the legal situation in your state, a child in an approved child restraint is safer than one in an adult seatbelt and much safer than an unrestrained child or a child being held by another passenger. Even in a low-speed crash, the strength required to hang onto a child is similar to lifting one end of a small car.

If you live in the ACT, NSW, Queensland, SA or Victoria, the law says you must use a Standards Australia approved child restraint for all infants (variously described as younger than 12 months or lighter than 9 kg). In the Northern Territory and Tasmania they must be restrained if a suitable restraint is available. In WA there are no specific requirements for children this age.

In the ACT, Queensland, Victoria and WA, children older (or heavier) than this must use a suitable approved restraint for their weight and size. In all other states, older children must use a seatbelt or a suitable restraint if one is available.

WOULD YOU throw your baby out of a fourth-floor window onto concrete? No, of course not. And you probably make sure your baby is correctly restrained every time you take him or her for a drive. But if you don't and you're involved in a car accident at only 60 km/h then you might as well have thrown your baby out of that window. The effect is much the same.

There are four fairly simple rules to remember with child car restraints: never drive with an unrestrained child no matter how short the journey, make sure the restraint is appropriate for your child, make sure it's installed properly and don't use it again if it's involved in an accident.

What restraints are available?

A child should use a restraint appropriate for his or her weight and size (*Approved restraints* on page 14 gives a list of restraints suitable for different weight groups). Don't judge solely by any age guidelines given, because children's weights can vary significantly within age groups.

A child should be placed in an approved restraint from the first time it travels in a car (including taking it home from the hospital). There are eight restraints currently on the market approved by Standards Australia as suitable for infants. All are designed to face backwards so that in the event of a crash

the force is distributed over the baby's back. Four of these restraints can be turned around when the child gets older, converting from a baby carrier to a child seat.

The child should move into a child seat when it gets heavier than 9 kg, longer than 70 cm, when the harness slots are level with the baby's shoulders and there are no higher slots or, if the restraint has a body band, when the child can start to undo it. Typically this will be around the age of four to seven months. However, if the child doesn't yet have good head control, it shouldn't be moved into a forward-facing child seat.

As well as the four restraints that convert from baby carrier to child seat, six approved dedicated child seats are currently available. Once again, use size to determine when a child outgrows a seat. If its shoulders are level with the top of the straps and there are no higher strap holes, if its eyes are level with the top of the seat or if it's heavier than the rated weight for the seat (typically 18 kg), it is time to stop using the child seat.

The next step up, booster seats, don't have any straps attached so aren't safety devices in themselves, but they do allow children to use adult seatbelts more safely by letting them sit higher in the seat. They can also be used with a harness — a safety device which attaches to the same anchor points as child seats and baby carriers. However, recent changes to the Standard mean these harnesses can

For babies up to 9 kg you can use a convertible restraint in its rear-facing position (left) or a baby carrier with a harness (right).



For larger children up to 18 kg there's the option of the convertible restraint in its forward-facing mode (left) or a dedicated child's car seat (right).

only be used on children between 14 kg and 21 kg. Since we recommend you leave children in child seats till they outgrow them (around 18 kg), that doesn't leave much scope for using a harness.

Choosing a restraint

The first decision you have to make is whether to buy a separate baby carrier and child seat or one convertible child seat. There is no real price advantage in choosing one over the other, so your decision will be based on the space available and which you find easiest to use. A baby carrier followed by a child seat seems to be most popular at the moment but convertible restraints, which are relatively new, are increasing their sales. If you're planning to have another child within four years or so you'll need more than one child seat, but this could be either a baby carrier and two child seats or a convertible seat and one child seat.

First check the restraint will fit comfortably in your car, particularly if you have a small car. If you can't try it out before you buy, measure the space available in your car and compare that with the size of the restraint.

It also helps to try a prospective restraint out with a baby, but since your first one should be bought or hired before your child is born, this isn't always practical. Try out all the buckles and straps. If you find them a little fiddly to use, they'll probably be very difficult with an unco-operative baby. Similarly, if you

have to force legs or arms through smallish holes, the experience won't be particularly enjoyable for you or your baby.

The SAFE-N-SOUND Baby Safety Capsule is a baby carrier only and is a popular product that has been on the market for a long time. It has a removable bassinet so the child can be put in and out of the car with a minimum of disturbance. However, it is quite easy to get your fingers caught in the latch when removing the bassinet and the ventilation isn't particularly good, so the baby can get quite hot and uncomfortable if precautions aren't taken.

A newer model has recently come onto the market with a harness for the baby rather than a body band with a hook-and-loop fastener (like Velcro). *Choice Cuts* in last month's issue discussed the harness model being potentially safer in a rollover accident than just a body band, and in fact the new Standard effectively means all capsules will eventually have to be harness types. Concerns have been raised, though, that the harnesses aren't big enough and some babies are outgrowing them too early (see photo overleaf).

When choosing a child seat, height is a fairly important factor. A young child is safer in a child seat than a seatbelt or harness, so you want him or her to stay in it for as long as possible.

The problem with convertible seats is you want them to be fairly tall when they're forward-facing child seats, but if

you have a small car you also want them to be fairly short when they're a rear-facing baby carrier. The SECURE CS4 has a clever solution to this problem: it comes with a removable headrest so it can be short or tall as the circumstances dictate.

Installation

It's very important the restraint be correctly installed — statistics indicate around 40% aren't. Using a bent coathanger to hold the restraint in place is clearly dangerous, but seemingly minor things, like allowing the restraint to touch the back of the front seat, will also hinder its performance.

All new cars sold in Australia (including station wagons and vans that can seat up to 12 passengers) are required to have child restraint anchorage points. The position of these points varies according to the brand and model of each car. Your car manual should say where they are.

Some older vehicles may not have anchor points built in, in which case you'll need to go to an approved restraint fitting station to have them fitted. The list of *Contacts* overleaf will help you find your nearest one. If you're unsure about how to install the restraint correctly you should also go to a fitting station. Some areas may not have an approved fitting station nearby (there are none in the NT or WA, for example), but the contact numbers should be able to advise you of an appropriate course of action.

If you can get into a routine where you check the restraint is correctly installed every time you go for a drive, the chances are you won't forget one day and put your child at risk. There are a few simple points to remember.

With all restraints:

- Read the instructions carefully. Don't assume you know how to do it properly.
- When you pass the seatbelt through the base of the restraint, make sure it's quite tight. Try moving the restraint around after you've tightened it.

- Make sure none of the straps is twisted.

- Remove loose objects from inside the car. With a rear-facing baby carrier:

- Only tighten the tether strap at the top to remove the slack. Overtightening will reduce the effectiveness of the restraint.

- Don't let the restraint touch the back of the seat in front. You should be able to slide your fingers easily between them.

- Place blankets over the harness or body band, not under it.

With a forward-facing seat:

- Make sure the top tether strap is reasonably tight.

Old restraints

If a restraint has been used in an accident, it should not be used again (this also applies to seatbelts, by the way). The stresses involved in even a relatively minor accident weaken the restraint and it can't be relied upon to perform satisfactorily later.

Therefore it's important if you're going to use a secondhand restraint to know its history. It's probably safest only to buy or borrow restraints from friends or family to be sure.

Even if a restraint hasn't been in an accident it can deteriorate with age. If the webbing is mouldy, faded or frayed, or the structure is cracked or rusty, it's best not to use it. There is no way to test the safety of a restraint without destroying it, so when in doubt, play it safe.

To prolong the life of a restraint, store it in a dry place when not in use; if you need to wash it, use soap rather than a bleach or detergent, which can attack the webbing.

Some products, such as the STEELCRAFT Safety Swinger which was recom-



Concerns have been raised that some babies are outgrowing the new harness on the Safe-n-Sound Baby Safety Capsule before they would otherwise outgrow the capsule. We decided to conduct a small trial with the aid of the Sydney Day Nursery. Eleven babies ranging from 5 kg to 9.5 kg (and 540 mm to 690 mm) were tried in the capsule. The harness could be fastened safely on all children but one (weighing 8.5 kg and 650 mm long), whose shoulders were too high for the straps. If you're having difficulty fitting the harness on your baby (while it is still smaller than 9 kg and 700 mm), make sure the straps have been correctly adjusted according to the instructions and if that still doesn't work, contact the place where you bought it for further advice.

mended by CHOICE back in 1984, are no longer manufactured but may still be sold secondhand. If a restraint doesn't carry a label saying it's approved by Standards Australia, don't buy it.

Renting

The alternative to buying a restraint is to rent one — rental schemes now operate in every state and territory. Some just hire out baby capsules, while from others you can also rent child seats, though usually on a short-term basis for tourists. The contact list below will help you find your nearest rental scheme.

A capsule costs around \$140 to buy, but you should be able to rent one for somewhere between \$20 and \$60 for six months (if you're planning to have a few children, it may be cheaper to buy one). They shouldn't be hired out if they're potentially unsafe but you'd be wise to examine any capsule you're planning to hire as rigorously as if you were buying it.

Approved restraints

The Australian Standard for child car restraints AS 1754 covers baby carriers, child seats, convertible child seats, booster seats and child harnesses. An approved restraint will carry a Standards Australia label. The following list covers

all approved baby carriers, child seats and convertible child seats. They are listed in alphabetical order within groups.

FOR BABIES ONLY (3 kg to 9 kg)

CENTURY Baby Shuttle (H)	\$158/\$170
KLIPPAN Carrytot (H)	\$125
SAFE-N-SOUND Baby Commuter (H)	\$110
SAFE-N-SOUND Baby Safety Capsule (H)	\$124/\$140
STEELCRAFT Safety Swinger	*

CONVERTIBLE SEATS FOR BABIES AND YOUNG CHILDREN (3 kg to 18 kg)

APRICA Convertible	\$230/\$259
CENTURY Convertible	\$220/\$250
KLIPPAN Two Way	\$219
SECURE CS4 Multirecline	\$220/\$229

SEATS FOR YOUNG CHILDREN (8 kg to 18 kg)

CENTURY Recliner	\$118/\$189
GM Child Love Seat	*
KLIPPAN Recliner	\$169
SAFE-N-SOUND Eclipse	\$135
SAFE-N-SOUND Mark 10	\$119
SAFE-N-SOUND Series 3	\$124/\$129
SECURE CS2	*
STEELCRAFT Safety reclining car seat	*

Prices shown are as current in February 1993.

(H) New samples of these restraints will have a harness.

Some older models may have a body band.

* Not a current model, but may still be available secondhand or for hire.

CONTACTS

The following numbers should be able to direct you to the nearest child restraint rental centre or approved fitting station in your area.

■ **ACT:** Infant Restraint Loan Service, (06) 290 2244.

■ **NSW:** Roads & Traffic Authority, (008) 04 2865.

■ **NT:** Territory Insurance Office (Darwin), (089) 46 2311;

Sallywags (Alice Springs), (089) 52 5536.

■ **Queensland:** Queensland Ambulance Service, (07) 227 4168.

■ **SA:** Australian Red Cross (SA division), (08) 267 7666.

■ **Tasmania:** Royal Automobile Club of Tasmania (RACT) Technical Services, (002) 38 2233.

■ **Victoria:** Your local council or Vic Roads, (03) 345 4373.

■ **WA:** Red Cross, (09) 321 0321.

HOME INSULATION

Cellulose fibre vs fibreglass: settling (hopefully) the great debate — and a few other arguments.

MENTION home insulation and immediately some people will tell you fibreglass causes cancer. Others will warn you cellulose fibre is a fire hazard.

With these two products claiming the greater part of the home ceiling insulation market it's time this debate was settled. Who's saying what, and should you believe any of it?

Half truths are whole lies

As with all debates there's a bit of truth in every argument — but that little bit can be as misleading and cause as much anxiety as an outright lie.

The competition between the cellulose fibre and fibreglass insulation industries is fierce — the information leaflets handed out in the marketplace don't tell the whole story. And in any case, the operators themselves are often confused about the real issues. In this article we've attempted to put all the facts as known into perspective so you can choose the product which suits you best.

Health problems from fibreglass?

All the evidence about fibreglass so far suggests householders in Australia need not worry that insulation with fibreglass batts will increase their risk of cancer or lung disease.

The debate over fibreglass revolves around two things: the size of the fibres, and, perhaps more importantly, whether you are likely to inhale them.

Glass fibres which are less than three microns in diameter (a micron is one thousandth of a millimetre) are so tiny that if inhaled they are drawn straight into the lung tissue. Fibres of this size are called 'respirable' fibres. Larger fibres get caught in your nose, the back of your throat, and in the bronchi (small airways branching off to your lungs), and, although they can cause considerable irritation, can eventually be coughed out.

Fibreglass manufacturers in Australia claim their products mostly contain fibre which is coarser than that considered to be respirable. They say the typical fibre size for the Australian product is 5-9 microns, while the typical fibre size for US products is more likely to be 3-5 microns; however, at least one US manufacturer produces a blown-in fibreglass product which has a average diameter of only one micron.

However, all fibreglass products contain a percentage of respirable fibres. The important difference for consumers in Australia is that most fibreglass made here — whether batts or loose-fill insulation — contains resin and binders which help reduce the release of these tiny fibres. The US product, as well as being somewhat finer, often does not.

Anecdotal evidence which suggested householders could be at risk from fibreglass insulation came from the US, where there have been reported cases of householders suffering serious respiratory and sinus problems. However, in at least two cases, the loose glass fibres were wafted

around the living areas by improperly sealed home air conditioning ducts.

While manufacturers in Australia use resin binders to encase the slabs of fibreglass and reduce the release of glass fibres, 'reduce' does not mean 'totally prevent'. Tiny fibres will still escape while the batts are being handled or walked on, so if you're the one installing them use protective clothing, goggles and a mask. The most obvious effect of glass fibres is their highly irritant (albeit temporary) effect on your skin, eyes, nose, mouth, throat and lungs.

With this in mind, we recommend if you want to remove fibreglass batts you should have them taken out through the roof, not through the manhole, to avoid dispersing tiny glass fibres through the house.

Some experts argue inhaling fibreglass is not in itself necessarily harmful, and that glass fibres are readily dissolved in body fluids. Risk would logically seem to be related to exposure, which is why studies concentrate on workers rather than consumers, who would normally be expected to run a much lower risk of respiratory complaints and lung disease.

Workers at risk?

As far back as the early 1970s laboratory technicians were able to induce cancer in rats by surgically implanting tiny glass fibres into their lungs and body cavities. It was this work, and because some workers in an earlier study had later developed cancers, that encouraged the

International Agency for Research on Cancer to classify fibreglass as a possible carcinogen.

Several major studies from the US and Europe have shown that people who worked in the industry in its early days had an increased risk of lung cancer and chronic lung and kidney disease — although the conclusions are unclear because some of the workers (in one study half of all those with shadows on their lungs in x-rays) had also been exposed to asbestos in the workplace.

Another factor which has blurred the researchers' findings is that cigarette smoking seems to be a significant factor. In one study of 284 workers, only three of the 35 workers with shadows on their lungs had never smoked.

In all cases, it's generally accepted that the workers most at risk of short-term illnesses were those installing or removing blown-in fibreglass, and those working in a manufacturing environment.

There isn't enough evidence to be scientifically conclusive, but to minimise any risk while studies continue, Worksafe Australia says it has adopted the most stringent safety precautions and work practices in the world. It took 40 years for the link between asbestos and cancer to become obvious, and so even though asbestos and fibreglass are structurally different, it seems reasonable to be guided by history and limit workers' exposure without waiting for proof.

In conclusion, and on the evidence available, we can say householders who use fibreglass batts are not putting their health at risk.

We suggest you do not use *any* loose-fill man-made mineral fibres in your ceiling where they can be redistributed by wind or faulty air conditioning and possibly inhaled.

Is cellulose fibre a fire hazard?

This second part of our article is an attempt to clarify the arguments surrounding the ignitability of cellulose fibre. Is it a fire — and therefore a safety — hazard? The answer is, *it can be*.

Fire investigation officers tell of the times they have attended a fire which began in a cellulose-insulated ceiling as the result of the careless use of a blowtorch by a tradesperson, or sparks from a bushfire getting under the eaves. Either the fire retardant in the cellulose had lost its effectiveness, or the material was never treated properly in the first place.

Currently, only two states (NSW and WA) have a regulation covering the ignitability of cellulose fibre insulation. Generally speaking, reputable installers treat

WHAT IS FIBREGLASS?

FIBREGLASS, as the name implies, is fibre made from molten glass. Similar substances such as rockwool are sometimes called man-made mineral fibres (MMMF). Rockwool is manufactured from molten rock (basalt).

Loose-fill fibreglass insulation manufactured in Australia is made from offcuts from the production of batts and blanket fibreglass, and contains some binders to reduce the release of fibres. Loose-fill fibreglass is used where batts are difficult to fit — inaccessible roof areas, some cathedral ceilings and specialist applications. It's not used in walls because it will settle and its performance will significantly reduce.

Installing fibreglass batts to an average 'R' rating (insulation effectiveness) in an average three-bedroom home (150 m²) costs around \$650–\$700 if you install them yourself. If someone installs them for you it will cost about \$150 more.

Fibreglass batts may not "sustain vermin" in that fibreglass makes poor food, but it does make good insulation material for rodents' nests as well as ours. Rats have been known to rip into the batts and pull tufts of them down into the wall cavities, as have possums and mice. However, if you live in an area where rodents and possums insist on house-sharing you will not solve the problem simply by changing to a different type of insulation.

You can have fibreglass batts installed by a tradesperson or do it yourself — but we'd recommend wearing a mask and goggles as well as gloves to reduce potential irritation.



Photo courtesy CSK Bradford Insulation

their products with fire retardant, but whether they all do it, all the time, and how much, nobody knows. At the moment it's very much a 'buyer beware' situation.

The question of whether the fire-retardant properties last over time has been partly addressed in a recent and confidential report to the NSW Minister for Consumer Affairs. One sample of cellulose fibre taken from the ceiling of a house where it was installed 10 years ago only just passed the Australian Standard ignitability test (which meant it ignited under increasing radiant heat after only two minutes' exposure). But the good news is the flame went out immediately the heat was taken away. This is the critical test, and the result was taken as reassurance that if a product has been properly treated with fire-retardant chemicals, it's likely to remain fire-resistant — for 10 years, at least.

In our experience fire-retardant behaviour can be expected of cellulose which has been treated properly. However, it's important to note that *fire-retardant* is not the same as *fire-proof*. Fire-

retardant means the cellulose fibre should not erupt into flames because a tradesperson has been working in the roof and has dropped his burning gas torch, or has allowed a hot-air paint-stripping gun to accidentally focus on a pile of insulation.

On the other hand, cellulose material which has fallen down around a recessed light fitting may ignite after time because of the build-up of constant and considerable heat. Almost anything will burn if sufficient heat is applied for long enough.

There is another consideration — one that's hard to quantify, but fire authorities know it exists. It gets very hot under most roofs, which preheats the material. The ambient temperature and the dust which may settle on top of the product over time may increase the flammability of cellulose fibre. So, if you need to work in the ceiling it would be prudent to take a handful of cellulose material (from the top) and check it for flammability before you start. Also ensure any cellulose is swept well away from the work area.

WHAT IS CELLULOSE FIBRE?

CELLULOSE FIBRE is made from pulverised waste paper in the form of a fine greyish fluff to which chemicals are normally added to make it fire-retardant. Manufacturers claim the main ingredient is recycled paper, and that cellulose insulation uses less energy to produce than other insulating products.

It's classed as a loose-fill material and is blown or pumped into the ceiling cavity — mostly into flat ceilings. Manufacturers claim it can be a more effective form of insulation than fibreglass because it gives complete coverage with an unbroken blanket of insulation.

Cellulose fibre may settle over time, reducing its effectiveness, so you should ensure the contract or invoice gives two guarantees: the compacted depth and a guaranteed 'R' value.

Cellulose is an extremely dusty product — some operators will 'seal' an installation (at extra cost) to reduce dust and help prevent the fibre and dust from blowing around a well-ventilated roof space. Nevertheless, it may not be the best choice of insulation if you or any of your family suffer from dust sensitivity.

An important consideration when deciding between fibreglass and cellulose insulation is that if cellulose fibre gets wet — as in the event of storm damage — the soaked material needs to be removed. Depending on the amount of water, it also becomes extremely heavy — to where its sheer weight could break your ceiling. Fibreglass batts, on the other hand, can be removed via the roof, dried, and put back.

The claim that cellulose fibre is "vermin-proof" is only partly true. It will deter silverfish and cockroaches — which presumably can't tolerate the borax fire retardant — but rats and mice will still happily track across it to their nests, leaving behind the smell of droppings and patches of urine.

We phoned four installers for the cost of installing cellulose fibre in an average three-bedroom home. From two of the numbers (well-advertised in the Sydney Yellow Pages) there was no reply. We phoned one of the major manufacturers of cellulose in NSW and were curtly told, "We don't give any information by phone, at any level, to any person, relative to the media."

When we explained we just wanted an average quote (as a consumer might), the manager simply repeated the statement. We ended up without a price, but anecdotally the cost seems comparable to that for fibreglass installed by an operator.

This interview reflects the unease and defensiveness which has grown up in the cellulose installation industry. There has been, and still is, no national regulation, and a lack of accountability in the industry. Cellulose fibre is so easily and cheaply made (sometimes quite literally from the back of a truck) it has been a lucrative get-rich-quick scheme for many traders who subsequently 'left town' when problems arose. Its industry body is trying to change all that, and along with consumers, has been arguing for regulation.



Cellulose fibre insulation material is a fine grey fluff made from waste paper — as you can see, it's dusty! As with fibreglass, we'd recommend anyone installing it wear at least a mask and goggles.

Installing cellulose

■ Make sure the installer's contract or invoice states that the *product* complies with the Australian Standard AS2462. An assurance that the *company* is licensed by Standards Australia is insufficient because that licence could apply to the manufacture of *any material* — it will not guarantee that what's being installed in your house has been treated properly. The statement of compliance must relate directly to the product being installed in your home.

■ It's also vital to make sure the insulation is *installed* according to Australian Standard AS3999, and that there is something in writing on the contract to this effect. While the first Standard deals with the manufacture of the product, this second Standard ensures the product is installed properly, with guards around possible heat traps, etc.

■ The fire authorities would also like to see all operators being required to fix a small metal plaque in the loft area detailing the company's name and address so the operator can be contacted again if necessary — if not by you, by a future

owner. The plaque should be embossed rather than just printed, so it would still be readable after a fire.

■ No-one knows how long treated cellulose remains fire-retardant, so we suggest you check your insulation every five years by taking a small handful of the material outside and trying to set fire to it by holding a cigarette lighter to it for at least 60 seconds. It may or may not ignite, but the flame should go out immediately the lighter is taken away.

■ Always check to see the installer has placed barriers around things such as recessed lights and bathroom fans — or you could have a fire in the ceiling regardless of what fire-retardant was used. Insulation should always be kept at least 900 mm away from hot flues, and 25 mm away from recessed light fittings. Electrical wiring should not be covered by *any* insulation.

Another common cause of roof fires is a breakdown in the metal flue pipes attached to freestanding pot-belly stoves. These pipes are usually surrounded by a metal heat guard (known as a flue shield) in areas near walls, or

where the pipe passes through a ceiling or roof.

While the flue shield provides valuable heat protection it can also hide any defects in the pipe. It's essential to have the flue pipe cleaned out at least once a year to check there are no rust holes or burned-out patches where heat could escape into the roof cavity. Flue pipes have been known to break down in as little as three years.

News flash!

The Commonwealth/State Consumer Products Advisory Committee is considering recommending to all ministers for Consumer Affairs that the Commonwealth Government make it illegal for manufacturers to sell cellulose fibre insulation which has not passed the Australian Standard with regard to flammability.

There are still a few checks to be made before the recommendation is put through (is the Australian Standard adequate?, for example) but consumers can expect a public announcement in a month or two. □



GREEN PAGE

BUSES GO ALTERNATIVE

AUSTRALIA'S bus operators are trying alternative fuels, including natural gas and a mix of ethanol and diesel, which have some environmental as well as economic benefits.

Around 100 prototype buses powered by natural gas have been operating in five states for several years, and have been used in developing and refining the technology. Now the number is set to increase dramatically. The State Transit Authority in Sydney has placed an order for 250 buses, which will begin rolling off the production line in 12 months. The South Australian State Transport Authority has ordered 100, which will start being delivered early this year.

The compressed natural gas (CNG) buses are expected to emit lower levels of several greenhouse gases, including carbon dioxide (CO₂), oxides of nitrogen and carbon monoxide (also a major contributor to low-level air pollution). The exact size of the reduction depends on a range of factors, such as the quality of the gas used, the design of the bus's engine and how it's tuned. However, a hopeful target would be 25% less carbon dioxide.

There are also other benefits of running buses on CNG — black smoke in

the exhaust is eliminated, and the engines are much quieter. On the economic side, because gas costs much less than diesel, the buses will be cheaper to run. Australia's vast supplies of natural gas also make them attractive, as it means we will need to import less oil.

Another alternative fuel is on trial in Canberra's buses: diesohol, which is a mixture of the alcohol ethanol and ordinary diesel. The ethanol is made from waste starch (often the cane left over from sugar production, but in this case wheat starch remaining after the protein, gluten, has been extracted). It is mixed with ordinary diesel so less of our dwindling petroleum reserves are used. Ethanol has been used for a long time as a petrol extender in Brazil.

Six buses will take part in the one-year trial, during which their fuel consumption will be monitored, oil sampled and emissions tested. Preliminary studies indicated that using diesohol will reduce emissions of carbon dioxide, oxides of nitrogen and black smoke, as it increases the thermal efficiency of the engine. This means you get more from the engine for the same amount of fuel and, because of the better combustion process, cleaner exhaust.

ECODESIGN CONFERENCE

THE ECODESIGN FOUNDATION and two other university schools of design in Sydney are organising a conference on ecodesign on April 16–18. One of the main aims of the conference is to bring together people involved in the network of groups being established around the country.

These groups focus on different aspects of ecodesign, ranging from architecture and interior design to industry redesign, business strategies, education, landscape and urban design.

According to the EcoDesign Foundation, the aim of the network is to help ecodesign grow as an idea, practice and medium of change. The conference will allow the groups to interact with each other, share information and exchange and debate ideas.

If you're interested in more information about the conference, or joining a group, contact Marianne Cini at the EcoDesign Foundation, Box 233 Holme Building, University of Sydney 2006, phone or fax (02) 516 3589. She has a full list of groups around Australia.

Turn to page 46 for this month's *Green Spotlight*.



Prototype buses powered by natural gas are proving both cleaner and quieter. More will start appearing on Sydney's roads from February 1994.

CRATE EXPECTATIONS

*Light beer has caught on — it still doesn't taste as good as regular beer
but the new 'Blues' have narrowed the margin.*

WHO'D HAVE THOUGHT IT? — one in four beers sold in Australia is now a *light alcohol* beer. That's a doubling over the last five years. Light beer has become a market worth a tidy \$1.5 billion annually and per head of population we're drinking 20 litres of light beer each year. So if you're not drinking light beer then someone else is having a skinful!

The biggest-selling light beer in Australia is the trendsetting TOOHEYS BLUE LABEL LIGHT BITTER. It's a new-era lower-alcohol beer which owes its runaway success to a dark amber colour, a fuller and more bitter taste, and the fact it's known as 'Blue', not 'Light'. It's less wussy to order a Tooheys Blue than a Foster's Light across a crowded bar. (There's a macho stag on the label too; Cascade pursues the same line with a light called 'Tiger Head'.)

Beer tastes remain very parochial in

Australia. Tasmanians pour a Cascade, West Australians down a Swan, Victorians go for broke with Carlton United beers (Fosters and Co), Queenslanders still spell beer with four Xs. Competition is strongest in NSW where Carlton United and Tooheys are now clashing evenly.

'No-name' light alcohol beers, however, have failed to take off. At least one brand — Penneys Bitter — has retired from the market, leaving PAYLESS LITE BITTER as the sole beer in this category. It's thought the failure of these 'brandless' brands is due to the small difference in price which can be offered now light beers as a group are cheaper than regular beers.

UNTAPPED MARKET

Light alcohol beer was introduced in Australia in 1960 by SA Brewing with its Adelaide Light, but was abandoned due

to lack of interest. Carlton Pilsener followed in 1968 (Carlton United spent 10% of its annual advertising budget promoting this beer, resulting in only 1% of sales in Victoria — a loser). TOOHEYS 2.2 LITE LAGER was the breakthrough in NSW (1984), and the market has surged ahead ever since.

This is due to a number of reasons, including the introduction of random breath testing, increased health consciousness, improved flavour, and a more socially acceptable image for the product. A good kick along came in 1989 when changes to federal excise duty led to a 22% reduction in the wholesale price of light alcohol beer, giving it a price advantage over full-strength beer.

We wanted to find out several things about the beers in this test. Are some more 'naturally brewed' than others? On the technical side we checked the kilo-



joule and alcohol content of the beers and looked for the preservative sulphur dioxide. A blind taste test with a panel of experts (see *Line-up at the bar* on page 24) is a guide to the best in terms of appearance, aroma and, most importantly, taste.

HOW THEY MAKE LOWER-ALCOHOL BEER

The illustration, right, shows how regular beer is made. Light alcohol beers are a modified version of this. There are a number of alternative processes:

■ **Alcohol removal:** Vacuum distillation at low temperatures and reverse osmosis are two methods which can remove alcohol from regular beer without sacrificing traditional beer character and body. But some important flavour compounds — esters, fatty acids and some types of alcohol — will be lost to various degrees. Examples are CARLTON SPECIAL LIGHT, CASCADE LIGHT LAGER, FOSTER'S LIGHT and SWAN LIGHT LAGER.

■ **Shorter fermentation:** If a lower concentration of malt sugar is used, fermentation time is shorter and less alcohol is produced. However, it's possible not as many flavours will develop this way. The HOMEBREW BLUE was made by shorter fermentation.

■ **High-gravity method:** A higher than normal concentration of malt sugar is used, which promotes a more flavourful fermentation. The brew is then diluted with water.

Under the Australian Food Standards Code, in order for a beer to be labelled light or 'lite' it must not contain more than 3.5% alcohol; a low-alcohol beer must not exceed 1.15% nor contain less than 0.5% alcohol; and a brewed soft drink must not contain more than 1.15% alcohol.

HOW NATURAL IS 'NATURALLY BREWED'?

Brewing is a process which takes place naturally when you mix malt, hops, yeast and water. So in a real sense all beer is naturally brewed — not just those which promote their naturalness in slogans.

But as in all things called 'natural' there are degrees, with additives and processes applied for very pragmatic reasons such as to prolong shelf-life and counter poor handling or storage conditions the beer might encounter along the way.

For example, beer's optimum shelf-life can vary from three months to one year depending on the method of brewing, whether preservatives are used, and storage conditions. Preservatives increase the product's shelf-life by preventing oxidation and growth of bacteria. The main preservatives found in beer are sulphur dioxide and ascorbic acid (vitamin C).

Under the Australian Food Standards Code beer must not contain more than 25 parts per million (ppm) of sulphur dioxide, while brewed soft drinks are permitted to contain up to 115 ppm. Our measurements show that none of these beers contained greater than 5 ppm sulphur dioxide, which is a very low result — by way of comparison, the Code permits dried fruits to contain up to 3000 ppm. Asthmatics who are sensitive to sulphur dioxide should minimise its consumption from all sources.

Most beers are pasteurised in the bottle or can to kill bacteria, but this could lead to oxidation and 'off' flavours. Ascorbic acid (vitamin C) may be added to counteract this. Alternatively some brewers with small volumes of production use filtration methods instead of pasteurisation to keep bacteria levels down (for example, HAHN).

The makers of the following beers informed us they add ascorbic acid: BIRELL PREMIUM LIGHT, CARLTON LIGHT, CARLTON SPECIAL LIGHT, COOPERS LIGHT, FOSTER'S LIGHT, MATILDA BAY BITTER, POWERS LIGHT BITTER, SWAN GOLD LAGER and SWAN LIGHT LAGER. Tooheys would not answer the question for its products.

Other additives are used to 'improve' the beer's characteristics or to control and direct the brewing process. The aim may be to reduce costs by speeding things up mechanically (for example, centrifuging) or substituting cheaper ingredients for more expensive ones. Taste or distinctiveness may be compromised by all this.

■ **Caramel:** Caramel adds flavour and colour and may be used instead of or as well as caramelised malt.

■ **Alpha and beta amylases:** These enzymes are added if the mix has insufficient malt; they are normally produced naturally by the malt to break down starch into maltose (a sugar).

■ **Sugar:** When less malt is used it may be necessary to add extra sugar so that enough alcohol is produced; sugar ferments more quickly than malt.

■ **Mineral salts:** These may be added to the water supply to improve its taste.

■ **Polyglycol alginates:** These are gums which help stabilise the head (foam) and keep it large and fluffy.

■ **Papain:** This is an enzyme used to rid the beer of chill haze — a precipitation of proteins — which can result from prolonged storage of the beer at low temperatures.

■ **Tannic acid and/or silica hydrogel and/or polyvinylpyrrolidone (PVPP):** These also help reduce chill haze. Silica hydrogel and PVPP are insoluble and are

filtered out of the beer before bottling; they're processing aids rather than additives.

Most of these additives are harmless, but sulphur dioxide and alginates may promote an allergic reaction in a susceptible person.

We asked the manufacturers what they meant by 'naturally brewed'. In essence this is their response: no added colours, flavours or preservatives, or simply that the beer was fermented using malt (as opposed to enzymes). Clearly this doesn't cover everything. The traditional German purity laws ('Reinheitsgebot') go further: the beer must be made using *only* water, yeast, hops and malt.

Those light beers which the manufacturers claim to have brewed to Reinheitsgebot standards are CLAUSTHALER,

AGE SHALL WEARY THEM

BEEER starts going stale anywhere from three months to one year after it's made, depending on the way it's produced, whether preservatives are used, and storage conditions.

Various number codes are used so people in the trade know the age of their stock. We'll let CHOICE readers in on the secret so you can buy the freshest beer.

The most common dating system is 'Julian' numbering. It's used by Tooheys, Castlemaine Perkins, Carlton United, Hahn, Redback, West End and Southwark.

■ The first digit is the year of production (2 = 1992, 3 = 1993).

■ The next three digits are the day of the year (028 = January 28, 365 = December 31).

■ Any digits following this refer to the batch or production number.

Variations of the Julian system are:

■ The first two digits refer to the year of production (used by Eumundi, Payless and Powers).

■ The day of the year is printed before the production year (Kelly's).

Other systems are less consumer-friendly:

■ Code edging: a series of notches on the label must be matched with a standard code edge card (Birell, Coopers and Swan).

■ Cascade has a unique coding system which is indecipherable without access to the company's own production schedule.

■ A representative of De Bono, which imports CLAUSTHALER, said they didn't know the date coding system on their beer.

HOW BEER IS MADE

1 Milled barley is moistened and left to sprout. This activates the enzyme diastase (or amylase) which begins to break down the barley starch into maltose (malt sugar).

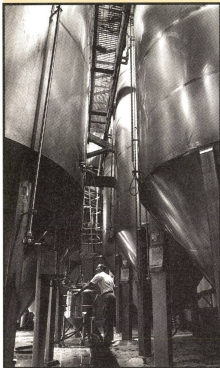
The barley is heated (malted) in a kiln: this inactivates the enzyme and halts the sugar conversion process. Intense heat produces caramel and results in darker coloured beers.

The wort is clarified and cooled then piped off into fermentation tanks.

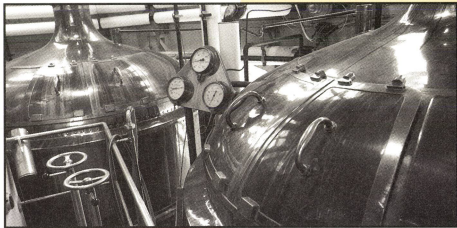
5 Yeast is added to the wort to ferment the sugars. Some brewers add extra sugar (cane or beet) here.

Fermentation produces carbon dioxide (bubbles and the beer head) and alcohol. The fermented wort is now beer.

After a few days the yeast is removed.

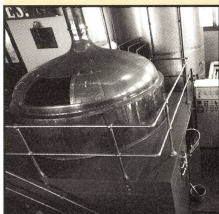


.....▶ **2** The dried malt is ground then mixed with hot water to produce the 'mash'. (Kettle 1)



▼ **4** Hops are added to give bitterness. (Kettle 2)

.....▶ **3** The 'wort' (the fluid from the mash) is boiled, stopping further enzyme action and killing micro-organisms. Malt sugars are extracted in the 'Lauter Tun'.



.....▶ **6** The beer is pasteurised in the bottle or can. Alternatively filtration methods may be used to keep bacteria levels down.

Bottles are sterilised before being filled, usually with hydrogen peroxide.



.....▶ Grain solids are removed and sold as cattle feed.



WARSTEINER PREMIUM LIGHT and
HAHN PREMIUM LIGHT.

ALCOHOL VARIATIONS

On measuring the alcohol content of the beers we found several were above the labelled amount. This can tell alcohol-conscious consumers the wrong story. Here are examples:

- XXXX GOLD LAGER (labelled 3.5%) measured 3.8%.
- HAHN PREMIUM LIGHT (labelled 2.9%) measured 3.3%.
- CASTLEMAINE 2.2 BITTER (labelled 2.2%) measured 2.5%.

BEER BELLIES

You'd be wrong if you thought light beer was significantly less fattening than regular beer. Although beer doesn't contain fat it does have kilojoules (energy) from the alcohol, from dextrins (complex carbohydrate which hasn't been totally broken down to sugars) and sometimes from small amounts of unfermented maltose. If you don't burn up excess energy (kilojoules not needed by your body) this can lead to weight gain.

Regular beers have around 140-170 kilojoules per 100 mL, with an average around 150 kilojoules. This means a single 375 mL stubby or can of regular beer could contribute 5% of the daily energy requirements of a 19 to 35-year-old man and slightly more for a woman of similar age.

The light beers measured from 96 kilojoules per 100 mL (CASTLEMAINE 2.2 BITTER) to 153 kilojoules (MATILDA BAY BITTER). As you can see, savings can be made, though some lights contain more kilojoules than some regulars. The brewed soft drinks go further — lowest was SWAN LIGHT LAGER at 72 kilojoules per 100 mL (0.9% alcohol).

If you're concerned about your weight yet love a beer you can minimise the kilojoule contribution of your beer by referring to the kilojoule column of the table. Remember also that apart from kilojoules beer contributes negligible nutrients to your diet.

Special carbohydrate-modified beers are available (for diabetics): we've found Carlton D-Ale (4.6% alcohol), Cascade D (3.7%), Castlemaine DL (4.4%) and Coopers DB Dry (4.4%).

DRINKING AND DRIVING

How much light alcohol beer can you drink and still drive within the law?

For community education purposes health and road safety authorities have settled on the concept of the standard drink. One standard drink equals 8-10 grams of pure alcohol, which is approxi-

mately how much alcohol your body can remove in one hour. Figure 1 below relates actual drinks to standard drinks.

Gender is a factor in determining how much alcohol you can drink and still drive within the law. More than one standard drink in one hour can push some women past the 0.05 limit which now applies in all states except WA for drivers with normal unrestricted licences (and in WA from July 1). For males it's more than two standard drinks in the first hour — after that, it takes only one standard drink per hour to keep you at that level.

Carbonation increases the speed with which alcohol is absorbed — hence the popularity of champagne, sparkling wines, beer, gin and tonic, scotch and soda as pre-dinner drinks or for a quick hit after work.

The Ministerial Council on Drug Strategies has proposed changes to the Food Standards Code to require that labels state the number of standard drinks contained in the bottle or can. This move has the support of the wine industry but not yet the distillers or brewers.

Bear in mind these are only general guidelines issued by health and road safety authorities to give a simple rule of thumb. Some men and women will exceed 0.05 earlier: body weight, build and stomach contents are all factors in a complicated equation. Some people can metabolise alcohol three to four times faster than others. And if you go on a drinking binge one night you might still be over the driving limit the next day since you can't speed up the rate at which your body will remove alcohol (as mentioned earlier, roughly one standard drink per hour for most people).

Even following these guidelines it may be prudent to wait an hour or more after finishing your last drink before getting behind the wheel, or to decide simply not to mix alcohol and driving at all.

Leaving aside driving, there are general health guidelines for low risk too, which are worth knowing:

- Alcohol consumption should not exceed four standard drinks per day for men or two for women.
 - There should be at least two alcohol-free days each week.
 - It's a mistake to believe you can 'save up' unused daily capacity and then safely drink heavily on another later day — it doesn't balance out. Binge drinking is unhealthy.
 - Abstinence is desirable during pregnancy.
- (Source: National Health and Medical Research Council)

ACCOUNTING FOR TASTE

The major ingredients in beers are malted cereal (usually barley), hops, yeast and water. Barley is malted (a process in which enzymes convert some starch to the sugar maltose) and becomes sweet — it gives the taste of grain. Hops are added to impart bitterness — the female flowers of the hops contain bitter resins and essential oils. Some brewers use pelleted hops, hop extracts or synthetic isohumulones (the bitter component of hops) in place of unprocessed hops.

Australian light beers are mostly larger styles. There can be a lot of variety in the style, but here's a guideline to what makes a good light beer:

- The look: A creamy head at least one centimetre thick should remain and not dissipate quickly. The fluid can be anything from pale gold to dark amber and clear, not hazy. Streams of bubbles should work their way from the bottom to the top.
- The smell: Hops and sweet malt — some are spoilt by a sharp and pungent or dirty smell from sulphur compounds.
- The feel: Weighty and full in the mouth — denser than a soft drink.
- The taste: Definite flavours of sweet

Figure 1. One standard drink is approximately how much alcohol your body can remove in one hour. This is how it relates to actual drinks.



toasted or honey malt and bitter herbal hops in balance, each striving for your attention. It should not be simply bitter, sweet or alcoholic, as the case may be, without real grain and hops flavours underneath.

■ **The ending:** Crisp, clean and refreshingly bitter without turning sour or stopping short. You should be left smacking your lips and wanting more.

TASTE TEST RESULTS

Taste test results are shown in the table overleaf. The new-style light beers — bitter, dark and with a slightly higher alcohol content — we've called 'Blues'. These stand in sharp contrast to the older-style sweeter and paler light beers.

There is no doubting the clear winner of our taste test: the best-tasting light alcohol beer is FOSTER'S SPECIAL BITTER. Not only did it score the highest total marks from our panel of eight judges, but had the lowest spread of scores, meaning there was a very high level of agreement. It was the favourite

or equal favourite of three of the judges and equal second for three more.

CASCADE TIGER HEAD BITTER and TOOHEYS BLUE LABEL LIGHT BITTER also shone. After this there's a breathing space before the other contenders.

It's interesting that these three beers (with measured alcohol 2.7–3.0% by volume) outperformed all beers in the 3.4–3.5% range. If you're watching every drop of alcohol you can make a saving here without sacrificing flavour. However, the low-alcohol beers and brewed soft drinks (here less than 1% alcohol) all rated poorly by comparison, confirming the important part played by alcohol in giving flavour to beer.

WEST END EAGLE BLUE had the fifth-highest score overall but the wide variation in individual scores means you could love it or hate it. Where there was significant disagreement we placed the particular beer at the end of the table under the heading *Mixed emotions*. You can tell how well they rated from their overall scores, and you may wish to sam-

ple them if you appreciate diversity in the world of beer.

For those who love the taste of beer but want to reduce their consumption of alcohol we included some low-alcohol beers and brewed soft drinks. CLAUSTRALER has the favoured taste, and contains less than 0.5% alcohol by volume. There was strong agreement on this one too. SWAN LIGHT (0.9% alcohol) scores almost as well for taste and may be easier to find in the shops.

WHAT TO BUY

LIGHT ALCOHOL BEERS	Price (£)*
FOSTER'S SPECIAL BITTER	16.95/23.00
CASCADE TIGER HEAD BITTER	22.50/23.00
TOOHEYS BLUE LABEL LIGHT BITTER	15.95/22.95
VERY LIGHT ALCOHOL DRINKS	Price (£)**
CLAUSTRALER (0.5% alcohol)	42.00/49.95**
SWAN LIGHT LAGER (0.9% alcohol)	15.70/24.95

* Prices indicate the range we found in February 1993 for a carton of 24 x 375 ml cans or bottles.

** Carton of 24 x 330 ml bottles.

HANGOVERS

SOME BEER DRINKERS are quick to point out that while they can drink one brand all night (aka 'Mother's Milk') certain other beers always leave a hangover and are to be avoided, claiming this is due to "all those additives in commercial beers". Is this true or pub mythology?

We've seen nothing to say the additives listed on page 20 are to blame for hangovers and headaches. Certainly sulphur dioxide and ascorbic acid are not likely to be headache material in the amounts we found.

There is evidence pointing in other directions which has more to do with natural ingredients and brewing processes than unnatural additives. In many cases alcohol is the culprit. Alcohol is a toxin and the more you consume the stronger the effect will be (both pleasant and unpleasant). As well as being poisonous, alcohol is a diuretic, meaning you lose a lot of body fluid through urine. This can leave you dehydrated, with symptoms like a headache and a dry mouth.

However, studies with migraine sufferers have shown that alcohol is not the sole noxious component of alcoholic beverages. Substances called **congeners** give beers their colour and distinctive flavours. Some congeners are very unpleasant indeed.

What are congeners? We'll get to that question in a roundabout way. There are many chemical compounds called alcohols, but the one we like drinking is ethanol. Your body's chemistry likes ethanol best, too: your enzymes start work to metabolise ethanol first. Only when most of the ethanol has been worked through the system do your enzymes start on the other alcohol compounds present.

Essentially congeners are substances which are like ethanol; they include methanol and the 'higher' alcohols (butanol, isopentanol, etc), esters and aldehydes (flavour compounds).

One of the troublemakers is methanol, which breaks down into formaldehyde (a probable carcinogen) and formic acid — toxic and unpleasant. In particular it attacks the optic nerve.

Methanol is one of the last things your enzymes work on, so this may explain why hangover symptoms are felt several hours after finishing drinking and why the 'hair of the dog' puts off the evil hour (fresh ethanol postpones the breakdown of methanol).

People's enzymes don't all act the same. It's thought those who suffer from bad hangovers probably have enzymes with a higher affinity for methanol, so they produce formaldehyde and formic acid more quickly.

Another nasty congener is isopentanol. One study found participants complaining of "peculiar headaches" following drinking large quantities of a particular light beer with high levels of isopentanol.

Many unpleasant congeners are produced in the first half of fermentation. Amounts are affected by such 'natural' factors as the yeast strain used, the temperature and the pH of the brew.

The major difference between red and white wine is the greater content of phenolic flavanoids which are leached out from the grape skin and pips during fermentation. As well as congeners, with red wine the amines (derived from proteins) will also contribute to characteristic hangover symptoms.

KNOW YOUR ENEMY

Which alcohol beverage gives the most severe hangovers? Brandy is worst, followed by red wine, rum, whisky, white wine, gin, with vodka giving the least. Beer is somewhere between these, giving a less severe hangover than whisky.

If you want to minimise hangover effects:

- Know your limit — the quantity of alcohol consumed is a major factor in hangover construction.
- Avoid dehydration — drink lots of water before, during and after your alcohol.
- Find the right drink — from what we've said about congeners you should realise that some alcohol drinks will be kinder to your body chemistry than others. Do your own trial, sticking to one brand at a time.

1 ALCOHOL (% v/v) CLAIMED/MEASURED

Regular Australian beer has an alcohol content around 4-5% by volume. Light beers fall into two groups: those from 2.2% to 2.9% and those around 3.4% (reduced-alcohol beers). Brewed soft drinks and low-alcohol beers measured less than 1% alcohol by volume in this group. In some cases the measured alcohol content differed significantly from that claimed (see main text).

2 AVERAGE TASTE TEST SCORE

We've rated the beers according to the averaged scores of the eight professional tasters in our panel. The maximum score is 20 points.

3 TASTING NOTES

Here is a guide to flavour and other factors of particular note, taken from comments by members of the expert tasting panel.

LINE-UP AT THE BAR

Our thanks go to our panel of expert beer tasters, drafted from major breweries and boutique breweries, along with a homebrew expert, wine and beer journalists and brewing consultants.

■ Dr Charles Hahn from Hahn Brewery.
■ Charles Hulse, product development chemist for SA Brewing.

■ Ian Richardson, brewer and brewing consultant.

■ Andrew Barr, Coopers' Brewery.

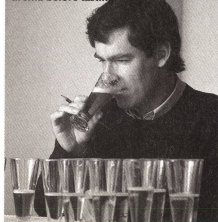
■ Greg Sproule, brewmaster for Tankstream Brewery.

■ Huon Hooke, beer and wine writer for the *Sydney Morning Herald*.

■ Mark Shields, beer and wine writer for *The Age*.

■ Mel Robson, home brewing consultant.

Huon Hooke samples the aroma before tasting



LIGHT ALCOHOL BEERS

1

Brand (in rank order within groups)	Manufacturer/importer	Price (\$)*	Alcohol (% v/v) claimed/measured	Kilojoules per 100 mL
FOSTER'S SPECIAL BITTER	Carlton & United Breweries	16.95/23.00	2.8/2.7	145
CASCADE TIGER HEAD BITTER	Cascade Brewery	22.50/23.00	2.8/3.0	140
TOOHEYS BLUE LABEL LIGHT BITTER	Tooheys	15.95/22.95	2.7/2.8	143
MATILDA BAY BITTER	Matilda Bay Brewing	19.55/20.00	3.5/3.4	153
COOPERS LIGHT	Coopers Brewery	18.95/25.95	2.9/3.1	100
CARLTON LIGHT	Carlton & United Breweries	17.45/23.00	3.3/3.3	130
PAYLESS LITE BITTER	Power Brewing (A)	11.50/16.00	2.5/2.7	100
POWERS LIGHT BITTER	Power Brewing	16.95/20.95	2.8/3.0	109
TOOHEYS 2.2 LITE LAGER	Tooheys	18.95/25.50	2.2/2.3	98
CASCADE LIGHT LAGER	Cascade Brewery	23.00	2.7/2.8	109
SWAN GOLD LAGER	Swan Brewery	18.99/24.95	3.5/3.7	124
CASTLEMAINE 2.2 BITTER	Castlemaine Perkins	19.95	2.2/2.5	94
EUMUNDI PREMIUM LIGHT	Eumundi	19.95/24.95	2.7/2.9	111
FOSTER'S LIGHT	Carlton & United Breweries	15.45/23.00	2.5/2.5	111
CLAUSTHALER	De Bono	42.00/49.95 (330 mL bottles)	<0.5/0.5	116
SWAN LIGHT LAGER	Swan Brewery	15.70/24.95	0.9/1.0	72
WARSTEINER PREMIUM LIGHT	Brimps	55.00/61.00 (330 mL bottles)	2.4/2.5	99
BIRELL PREMIUM LIGHT	Coopers Brewery	4.40 (6-pack 375 mL cans)	0.5/0.4	92
CARLTON SPECIAL LIGHT	Carlton & United Breweries	17.45/23.00	0.9/1.0	86
KELLY'S LIGHT	Kelly's	13.00/15.00 (12-pack 375 mL cans)	2.5/3.5	113
MIXED EMOTIONS — WHERE THE JUDGES HAD MIXED OPINIONS				
WEST END EAGLE BLUE	SA Brewing	16.95/20.99	2.7/2.8	123
SOUTHWARK GOLD LAGER	SA Brewing	21.95	3.5/3.6	134
XXXX GOLD LAGER	Castlemaine Perkins	19.95/27.00	3.5/3.8	129
HOME BREW 'BLUE'	not applicable	not applicable	not applicable/3.2	119
HAHN PREMIUM LIGHT	Hahn	29.95/30.99 (335 mL bottles)	2.9/3.3	127
XXXX LIGHT BITTER	Castlemaine Perkins	17.95/26.50	2.7/2.9	102
WEST END LIGHT	SA Brewing	14.95/20.00	2.6/2.7	106
REDBACK BEER LIGHT	Matilda Bay Brewing	20.00/24.00 (345 mL bottles)	3.4/3.5	132

* Price per carton of 24 x 375 mL bottles or cans (except where indicated), based on a national price survey. Matilda Bay Bitter and Payless Light are only available in cans.

(A) At the time of testing this beer was brewed for Payless by Powers; it is no longer brewed by Powers, so the result may be affected. All beers are made in Australia except Clausthaler and Warsteiner, which are imported from Germany.

2	3	
verage taste test score	Tasting notes	Brand (in rank order within groups)
16.6	Good head; deep orange/amber colour; floral hops and toasty malt aromas; roasted malt and hops flavours with lingering bitterness. "Softest of the Blues winds up to a winning bitter finish."	FOSTER'S SPECIAL BITTER
16.0	Brown head; deep orange/amber colour; strong caramel malt aroma; sweet malt taste with slightly bitter finish which lingers. "Tailored Blue — bitter-sweet and pleasing."	CASCADE TIGER HEAD BITTER
15.7	Creamy head; deep copper/amber colour; perfumed yeasty aroma; full-bodied malt flavour with lingering bitter finish. Maybe a slight vegetal taste. "The Big Blue — drinks like a 'real' beer."	TOOHEYS BLUE LABEL LIGHT BITTER
14.8	Thick creamy head; mid-amber/orange colour; clean malt and hops aromas — smells like a beer; sweet malt moves to bitter finish in good balance. "Sweeter Blue — commercial and easy to drink."	MATILDA BAY BITTER
14.5	Good head; mid-amber colour; floral and hoppy aromas; astringent and bitter with malt and hops flavour and a clean lingering finish. "Easy to drink — almost a 'real' beer."	COOPERS LIGHT
14.1	Creamy head; light amber colour; fragrant, yeasty and a little sulphury; light on flavour but a clean, bitter finish — a touch sulphury. "Clean commercial — more alcohol but less character."	CARLTON LIGHT
14.0	Good thick head; mid-amber colour; vegetal and hoppy aromas; hoppy/spicy flavours with dry crisp finish. "Clean and refreshing — begs another."	PAYLESS LITE BITTER
13.9	Creamy head; deep gold colour; malt and hops aromas; malt and hops flavours in good balance lead to a nice bitter finish. "Easy drinking but lacks depth of flavour."	POWERS LIGHT BITTER
13.9	Average head; mid-amber colour; perfume and malt aromas; clean and shows a little malt flavour but ultimately watery. "Well-balanced but light on taste."	TOOHEYS 2.2 LITE LAGER
13.7	Coarse head; bright amber colour; perfumed yeasty aroma; mild-mannered hoppy taste with clean finish. "Clean and simple."	CASCADE LIGHT LAGER
13.6	Good head; light gold colour; hops with slight sulphury aroma; bland, light and bitter. "One-dimensional."	SWAN GOLD LAGER
13.4	Foaming head; bright, amber/gold colour; light hoppy aroma; clean, thin flavour. "Watery with little character."	CASTLEMAINE 2.2 BITTER
12.7	Thick, creamy head; mid-amber colour; subdued fruity aroma; thin, burnt grain flavours with clean, short finish. "Distinctive grain taste stands out — like it or not."	EUMUNDI PREMIUM LIGHT
12.3	Solid head; gold colour; fruity yeasty aroma — a touch sulphury; watery, sweet and lacking flavour. "Commercial style — mild-to-bland."	FOSTER'S LIGHT
12.0	Creamy head; pale amber colour; malt and worty aroma; sweetness cloys without full flavour but ends bitter. "Not particularly refreshing but best of the brewed soft drinks."	CLAUSTHALER
11.6	Head collapses; pale straw colour; yeasty, rubbery aroma; very light, soft flavour though showing bitterness. "Ultimately bland."	SWAN LIGHT LAGER
11.3	Coarse head; very pale straw colour; worty hops aroma; vegetal flavour with bitter finish. "Watery and bitter."	WARSTEINER PREMIUM LIGHT
11.0	Good head; hazy pale amber colour; malt and buttery aroma; strong, harsh and bitter flavour without much aftertaste. "Beer-like."	BIRELL PREMIUM LIGHT
10.9	Good head; pale straw colour; malt and yeasty aroma; very little flavour capped off with a sour finish. "Empty."	CARLTON SPECIAL LIGHT
Not scored — see tasting notes	Not scored due to problems with brew; it foamed badly and probably had some wild yeast, indicating not ready for bottling.	KELLY'S LIGHT
14.6	Creamy head; deep copper/amber colour; banana and malt aromas; roasted malt and fruity flavours with slight lingering bitterness. "Fruitier than the other Blues."	WEST END EAGLE BLUE
14.3	Big head; pale amber colour; fruity malt aroma; toffee/honey and fruit flavours. "Sweet, fresh and simple."	SOUTHWARK GOLD LAGER
14.2	Reasonable head; mid-amber colour; yeasty malt aroma; grainy maltiness with some bitterness but a touch sulphury. "Clean commercial — easy to drink."	XXXX GOLD LAGER
13.2	Good head; deep orange/amber colour with yellow head; roasted grain with rich fruity and yeasty aromas; unusual woody, spicy and very bitter flavours. "Plum pudding Blue."	HOME BREW 'BLUE'
12.9	Strong white head; pale yellow colour; yeasty, floral and hoppy aromas; malt/hops balance in lean body, a touch sulphury, with a short crisp finish. "Astringent style pulls up short."	HAHN PREMIUM LIGHT
12.7	High head; mid-amber colour; pungent earthy/hoppy aromas; soapy, sulphury and wine-like tastes, but with a clean finish. "Bland, clean taste undermined by strong aroma."	XXXX LIGHT BITTER
12.5	OK head; mid-amber colour; spicy aroma; thin, sweet and fruity taste. "Not one to drink all night — the distinctive aroma overwhelms the taste."	WEST END LIGHT
12.3	Big frothy head; pale gold/straw colour; smoky bacon and medicinal aromas; sweet cloves and yeast flavours: a distinctive wheat beer. "Strong, smoky breakfast beer — one glass may be enough."	REDBACK BEER LIGHT



CONSUMER IN LAW

YOUR CLOTHES RIGHTS

If the label leads you astray, where do you stand?

MANUFACTURERS are obliged under consumer protection laws to label items of clothing in specific ways. The care labelling standard ought to take the guesswork out of wash-day, and the mandatory safety labelling standard for children's nightclothes should reduce the risk of them catching fire. But as the record fine imposed last year on Coles Myer for incorrect labelling attests (see \$52 000 for *wrong label*, below), these measures aren't infallible. It helps to know what you have the right to expect.

CARE LABELS

A CHOICE staff member recently bought a simple summer shirt made for Sportsgirl, a large Australian retailer. After one wear-

ing — on a typical muggy Sydney day — it needed a wash. When she looked at the label she was surprised and irritated: it read "100% rayon/dry clean only/warm iron". Surely rayon could be hand-washed? If she followed the label she'd pay out more than the cost of the shirt in dry cleaning bills before the season was over. But if she washed it, she'd have no recourse (and no shirt) if something did go wrong. In the end, she handwashed it carefully and it seemed fine. But did the label meet the requirements of the law?

There is an Australian Information Standard for care labelling of garments. All clothing sold in Australia must carry labels providing adequate information on washing, drying, ironing, dry cleaning, general care and warnings, and

treatments other than laundering or dry cleaning, as appropriate. It should include warnings about what you shouldn't do as well as descriptions of the appropriate treatment techniques, and should cover all parts of the garment, including trim. Dry-cleaning instructions should be accompanied by a symbol which tells the cleaner what solvent is most appropriate.

We rang Sportsgirl to ask about the shirt our staff member bought. The company told us it tests the fabrics it uses thoroughly in its own laboratories — how much they shrink, if they're colour-fast, etc — to determine the care instructions. It is usually the amount of shrinkage that determines whether or not a garment can be washed.

\$52 000 FINE FOR WRONG LABEL

THE RISK of children's nightwear catching fire is real: over the years it's caused a significant number of burns to Australian children, some of them severe. For this reason these garments must carry labels warning parents of the degree of fire risk involved, under a mandatory consumer product safety standard.

Late last year, Coles Myer was fined \$52 000 in the Federal Court for breaching this standard, by selling children's nightdresses with the wrong fire danger warning labels. The court action, taken by the Federal Bureau of Consumer Affairs, involved highly flammable nightclothes — called **NIGHTWINKS** and sold in 137 K Mart stores nationwide during 1990 — that did not carry the required distinctive red label with the words "Warning — High fire danger — Keep away from fire". Instead, they were incorrectly labelled "Styled to reduce fire danger".

Obviously this is a potentially disastrous mistake. Instead of bearing a clear warning, the nighties were actually labelled in such a way to give a sense of security to the purchaser. Nightclothes entitled to carry the 'styled to reduce fire danger' label are very different from the **NIGHTWINKS** nighties; they must be form-fitting (such as ski pyjamas) and meet other strict requirements about their materials, trim and dimensions.

Coles Myer pleaded guilty to 10 charges of breaching the Trade Practices Act relating to this occurrence. Six thousand of the mislabelled nightdresses were sold before the mistake was detected, and it was not clear at the time of judgment how many

had been returned and how many were still out in the community.

In subsequent inspections — nine, 14 and 43 days after the existence of the wrong label had been brought to the attention of Coles Myer — Bureau staff found mislabelled nightdresses still on sale in K Mart stores. The judge found that although the company claimed to have spent 2000 hours of staff time taking steps to withdraw the nightdresses and prevent a recurrence of the offences, those steps were not effective and not taken quickly enough, given the danger to consumers. He concluded, "Unfortunately, on the evidence it must be said that the defendant [Coles Myer] breached its trust first by failing to prevent the three 'mistakes' [which led to the mislabelling] ... and, of greater importance, by failing to act in accordance with its own stated principle that the 'safety of children must be paramount' when it was deciding on measures to prevent a recurrence."

This is the highest fine yet for a breach of a consumer product safety standard and should send a warning to clothing manufacturers and importers to take care with safety labelling. They have a duty to protect the public.

Consumers should also realise they can't rely absolutely on safety labelling and should always try to assess children's clothing for safety themselves, looking out for highly flammable fabrics and buttons or decorations which might pull off easily and become a choking hazard for infants.

This label meets the Standard, giving appropriate directions for all aspects of care. Drying instructions can be left out if all drying methods will dry the article without damage. Ironing and dry cleaning instructions can be omitted if you wouldn't normally iron or dry clean that type of garment (eg, socks). If there are no warnings about colourfastness — such as "Non colourfast, wash with similar colours" or "Designed to fade" the item should not lose dye in the wash.



The shirt in question was made of viscose rayon. Because this fabric usually shrinks by up to 10% in length but often recovers most of its original length when ironed, Sportsgirl measures its shrinkage after it is washed and ironed. If a fabric shrinks more than 3% it is given a 'dry clean only' label. Sportsgirl tells us this is in line with the appropriate Australian Standard, and that it is not in its interest to be over-cautious in care labelling: if customers see a 'dry clean only' label they're less likely to buy the garment.

In this instance, Sportsgirl's testing showed shrinkage of between 5% and 7% in length after washing and ironing. Although the shirt's short sleeves and loose-fitting design meant this amount of shrinkage would go unnoticed by most consumers, from the manufacturer's point of view, the 'dry clean only' label was justifiable and was certainly in line with the Standard.

However, according to the Federal Bureau of Consumer Affairs, over-cautious labelling is a common breach of the Standard. We hear such complaints too: for example, a subscriber wrote to us about a tracksuit which was part of her daughter's school uniform that was labelled 'dry clean only'.

Perhaps some manufacturers use over-cautious labelling rather than testing the material properly before putting it on sale — to 'be on the safe side' so the consumer has no redress if the garment is washed and damaged. It does, however,

take away the usefulness of care labels for consumers — how are you to know when 'dry clean only' is actually true?

As long as manufacturers think they can get away with inadequate 'safe side' labelling, you can't, but there are a few things you can look for. Always check the label before you buy. 'Dry clean only' instructions on an item which would normally be machine washed — such as a cotton T-shirt or tracksuit — could mean it is deficient in some area, such as colourfastness or shrinkage, or is of poorer quality than it looks.

Garment manufacturers as well as importers, wholesalers and retailers have responsibilities to ensure products have appropriate care labels attached. The Federal Bureau of Consumer Affairs conducts random surveys of the marketplace. If it has any doubts about the accuracy of the information on the label, it has the item tested and follows up the question with the supplier.

If you obey the care instructions to the letter and the garment shrinks, the dye runs or the fabric loses its lustre you can take it back to the retailer for a replacement or refund. If they refuse, you would have a case for complaint and could take them to the small claims tribunal/court in your state. There are examples of clothing suppliers being prosecuted for using incorrect care labels: for example, in 1989 Fiona's Clothes Horse, a manufacturer and retailer of women's clothes, was fined for selling trousers

This label appears to breach the Standard in two ways. It doesn't give ironing instructions (even if it is only able to be dry cleaned, ironing between trips to the cleaner is normal) or a dry cleaning solvent symbol. It also seems over-cautious for this particular garment, in that it doesn't give washing or drying instructions although washing is possible.



which lost their printed pattern when washed. They were labelled "Hand wash, drip dry, warm iron, polyester & cotton" when in fact they were made of acetate fibre and were suitable for dry cleaning only.

FIT FOR THE PURPOSE?

Clothing, like all goods sold to the public, is also covered by the merchantable quality warranty. This wide-ranging provision means goods sold must be of a reasonable standard and must be fit for the purpose for which goods of that kind are normally bought. It could be reasonably argued that casual clothes which require frequent cleaning but are unable to be washed are not fit for the purpose they are bought.

Consumer claims tribunals have heard and upheld complaints about clothing being of unmerchantable quality: for example, swimwear that slipped off when the wearer swam in it, swimwear that became see-through when wet, and stonewashed jeans that frayed badly after six weeks. We suggest consumers let retailers and manufacturers know they are not prepared to buy inexpensive casual clothes which must be dry cleaned.

Some states also require that the label on clothing lists the type of fibre the item is made from. If more than one type has been used, it must state the proportion of each in descending order. It's planned that this be adopted as a national standard by the end of the year.



DRIVELINES

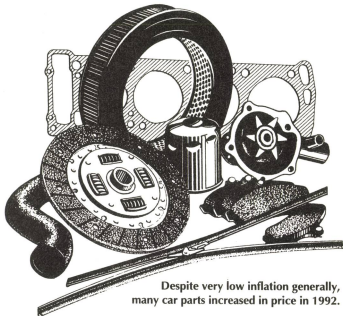
SPARE PARTS PRICES

AFTER A YEAR of belt-tightening and general economic restraint in 1992, inflation was almost non-existent, yet the cost of car spare parts rose by 6.5% during the year, according to the National Roads and Motorists' Association (NRMA). The increase was felt most by owners of Japanese cars, thanks to the poor performance of the Australian dollar. Nearly 60% of all parts surveyed increased in price, while around 5% decreased.

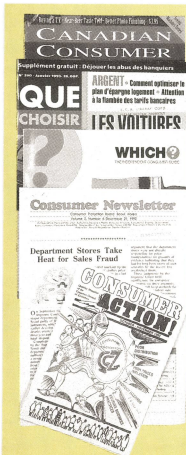
The best result was achieved by Holden. Only 31% of its parts increased in price, around 4% decreased and the rest stayed constant. Most overseas manufacturers increased their prices but the NRMA highlighted Daihatsu and Suzuki as bucking that trend. Many of their parts actually decreased in price during the year.

NRMA Insurance Parts Manager Anthony Boddy said many people don't realise how much they spend on crash repair parts. He estimated the annual figure to be \$800 million for the whole country.

Boddy said the survey is meant to keep the manufacturers honest. "With the Australian motor vehicle market suffering from recession and stiff competition, manufacturers may look to spare parts to increase their flagging profits," he said.



Despite very low inflation generally, many car parts increased in price in 1992.



WORLD ROUND-UP

AS PART OF the international consumer movement, we receive consumer magazines from our sister organisations all around the world, and it's interesting to see the issues consumers are worried about in other countries. The following are some recent overseas motoring topics.

■ In Canada, a government investigation found when some 'fake' consumers tried to bargain with Montreal car dealers about a car price, they were often shown a 'confidential' dealer invoice price to prove the dealers were making virtually no profit on the sale. The invoices looked genuine and the price was the same from dealer to dealer, but it was hundreds of dollars more than the genuine invoice price. However, *Canadian Consumer* says, "Canada's competition laws are so weak that it's unlikely the dealers will even get a slap on the wrist for colluding to fix list and 'cost' prices."

■ In France, the lifting of trade barriers between the 12 European Community countries as of January 1 this year is the hot topic. *Que Choisir* tells its readers they can buy most products in another EC country and take them home without formality. Cars are the exception, however — they still have to be formally imported. French people can buy them out-

side France without the local sales tax as long as they pay the French sales tax on return to France. A survey of the EC countries found Denmark had the cheapest cars when sales tax was not included (although with Danish sales tax they were the most expensive).

■ In the UK, *Which?* has been having a dig at the anti-corrosion warranties being offered on new and not-so-old secondhand cars. It says the warranties are loaded with conditions (only certain types of rust are included, you sometimes have to undergo regular inspections to check on the car's condition, etc). When you get down to the nitty-gritty, the magazine concludes, "A rust guarantee is not a contract, so a manufacturer is not bound by law to fix any rust, despite what the warranty may say."

■ Meanwhile in Korea, a survey of 52 schools in Seoul by *Consumer Newsletter* has found 12 had no pedestrian crossings marked on the road and 26 had no warning signs for child safety. And in Zimbabwe, *Consumer Action!* is worried about the lack of standards for locally produced car spare parts. It receives around 100 complaints about cars each month and feels the current system "results in consumers purchasing spare parts which are most likely to be below standard".

DEFECTIVE CARS

ACCORDING to Goodyear, when it offered free safety checks last year it "found defects in a staggering 72%".

A total of 1990 cars was checked in NSW, Queensland and Victoria last year, and 1432 had some sort of defect. The most problems (31% of all cars) were found in the front end (suspension, steering, etc). Twenty nine per cent had problems with the brakes and 21% had tyre problems. On a state by state basis, there were more cars with defects in Victoria (77%) than the other two states but cars examined in NSW on average had more defects.

You have to be slightly wary of some 'free' safety checks because the easiest place for the defect to be corrected is right there and then, which can be highly profitable for the people offering the 'free' service. But, bearing that in mind, if it's free you might as well take advantage of it.

SIZED FOR SAFETY

STATION WAGONS and vans usually come out of accidents much better than sedans, according to US insurance statistics.

The figures, from the Highway Loss Data Institute, are based on the amount of money paid out for different types of car. Not surprisingly, they show sports cars and luxury cars come out worst in terms of cost.

The statistics also cover personal injury claims and these clearly show you're safer in a large car than a small one. Large four-door and luxury cars were the safest, with a personal injury claim rate nearly 40% better than average. Large station wagons and vans weren't far behind and, as we said above, they also had the lowest average damage cost per accident.

Cars with airbags weren't noticeably better on the personal injury statistics than those without. The Institute says this is because airbags reduce injuries in serious crashes but these crashes are a minority, so the benefits aren't reflected in its figures.

The effectiveness of airbags in serious crashes is supported by another US body, the Insurance Institute for Highway Safety, which has found airbags effectively reduce car fatalities by 20%, based on a comparison between similar-model cars, with and without airbags. In frontal crashes, cars with airbags had 29% fewer fatalities than similar models without. Since not all crashes are frontal, the overall effectiveness of airbags was estimated to be slightly lower. □

Announcing The 8th CHOICE Subscriber Draw For new CHOICE subscriptions and renewals received April 1 to June 30, 1993.

STOP PRESS: The winner of the 6th Subscriber draw is Ms Melva Smith of Mt Duneed in Victoria. Congratulations!

On July 1 we'll be holding our eighth Subscriber Draw. The lucky winner will be able to choose any two products from the following tests published October 1992 to December 1992.

- | | |
|---|--|
| ☐ Notebook computers (December 1992) | ☐ Air conditioners (November 1992) |
| ☐ Handheld blenders (November 1992) | ☐ Answering machines (October 1992) |
| ☐ Cordless phones (December 1992) | |



These are products we bought for testing (we never take manufacturers' samples), so you won't be the first to turn them on or set them up. But we'll cover any service problems with a CHOICE warranty that'll match the manufacturers' — just as if you'd bought them new.

All new CHOICE subscriptions and renewals received from members and personal subscribers (including donors of gift subscriptions) by June 30 will go into the draw, unless of course you indicate you don't want to be included.

(If you're not due to renew your subscription during the period, don't worry, we'll be holding other draws during the year — your renewal notice will have the details.)

The perfect gift

Here's where you stop racking your brains for the right present. With a CHOICE of their own, your friends can make big savings (and you may get to keep your own copy!).

And every new CHOICE subscription you give or renew for someone else means an extra entry for you in the Subscriber Draw. Give two gifts, gain two extra entries. Give three, and you've tripled your chances.

Use the order form overleaf

CONDITIONS OF ENTRY

1. The winner will be drawn from new subscriptions and renewals from personal subscribers (including members and donors of gift subscriptions) received April 1 to June 30, 1993. If you renew or subscribe for two years, you get two chances to win.
2. Information on how to enter and prizes form part of these conditions of entry.
3. Employees, and their immediate families, of the Australian Consumers' Association and its associated companies and agencies are ineligible to enter.
4. Entrants must be residents of Australia.
5. Applications are subject to a verification check and judge's decision is final. No correspondence will be entered into.
6. The prizes will be delivered free anywhere within Australia.
7. Prizes cannot be taken as cash.
8. South Australian residents may enter the draw by completing the form and posting to: Reply Paid No. 13, ACA, 57 Carrington Road, Marrickville NSW 2204, without subscribing to the magazine. Only one entry per person is permissible through this method.
9. Last date for receipt of entries to the draw is June 30, 1993. No responsibility accepted for lost, late or misdirected mail.
10. The draw will be conducted at the office of the Consumers' Association at 10 am on July 1, 1993.
11. The winner will be notified by letter and published in the October 1993 issue of CHOICE magazine.
12. The promoter is Australian Consumers' Association, 57 Carrington Road, Marrickville NSW 2204. NSW Permit No. TC93/0670, VIC Raffles & Bingo Permits Board Permit No. 93/482 issued on 24/2/93, ACT Permit No. TP93/0326 issued under the Lotteries Ordinance, NT No. NT93/0241.

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CHOICE LINES



Consumer Rights Advice

CHOICE operates consumer rights lines for people having problems with a faulty product or a dispute with a service person. The lines set out what your basic rights are and what steps you can take to protect them. These lines are also available in four languages other than English — Vietnamese, Arabic, Chinese and Turkish.

CHOICE Consumer Rights Advice:

0055 20019

Advice in Vietnamese:0055 20008

Advice in Turkish:0055 20009

Advice in Chinese:0055 20010

Advice in Arabic:0055 20011

Youth lines

A line specifically for young consumers, the 'Ripped-off' Line, outlines your shopping rights as well as letting you know what you can do if you run into problems with something you have bought.

Students can also call a resource line to find out where to get up-to-date information on the consumer movement and the environment. These two topics are the most requested by students and teachers who ring our Consumer Information Service.

CHOICE 'Ripped-off' Line — Advice for Young Consumers: 0055 20007

CHOICE Student Resource Guide:

0055 20012

Product advice

A number of product lines also summarise what to look for when you are buying a particular product. Brand-name recommendations aren't included, however — these remain exclusive to CHOICE subscribers.

CHOICE Washing Machine Advice:

0055 20013

CHOICE Water Filter Advice:

0055 20014

CHOICE Baby Products Advice:

0055 20015

CHOICE Safer Domestic Pest Control

Advice:

0055 20016

Other lines

A media 'hotline' provides immediate and accurate background information on consumer issues being reported in the news media, while a 'suggestion line' gives you a chance to say what you would like to see tested or researched for publication in CHOICE.

CHOICE Media 'Hotline':

0055 20018

CHOICE Suggestion Line:

0055 20017

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IL 9303 INS

FLUED GAS WALL FURNACES AND HEATERS

Flued gas heaters are big, warm, clean, expensive to buy and install but cheap to run. Our test found some good choices for warming large areas.

WHEN YOU REALLY have to get it right you can't go past a flued gas heater or wall furnace to warm up your home at an economical cost.

If you've got any concerns about toxic or unpleasant gas emissions (or if local laws regulate the use of big gas heaters, as in Victoria and WA) you should get a gas heater with a flue. The flue is simply an exhaust pipe through the wall or roof. A secondary benefit of having a flue is it reduces condensation on walls and windows — but room air becomes drier, which may affect indoor plants and irritate eyes.

At \$900 to \$1800 a flued heater or wall furnace is an expensive item to be stuck in one position in your home. Installation itself will add about \$300 or more to the overall cost. By comparison an unflued heater is movable and only \$500 to \$650 to buy. An unflued heater may also be more energy-efficient — a flue can waste as much as 15% of the fuel's energy.

While the market trend is towards flued heaters with a high heating output, sales in coastal areas around mainland Australia (except Victoria) remain higher for unflued, reflecting different consumer demands and climates. We reported on unflued gas heaters in April last year, and this time tested flued heaters suitable for large areas.

HOW THEY WORK

There are two ways a heater makes you warm: radiant heat (infra-red radiation) is felt as warmth or a slight burning sensation on your exposed skin, while convection heat warms the air, circulating heated air around the room (generally with the aid of a fan). The heaters in this test are all fan-forced convection space heaters and have no significant radiant output or visible flame.

The IXL and VULCAN wall furnaces use a flue which acts like a chimney, discharging exhaust gases through the roof by natural convection (hot air rising). Air for combustion purposes is drawn from within the room (compare the RINNALS below). Since the flue goes through the roof it's possible to install a



Flued gas heaters are particularly good if you're building a new house — they can be built into the wall to take up minimal space. Pictured here is the IXL Finesse, our 'Best Buy'.

wall furnace on any wall of the house, whether inside or outside. It can even be built into the wall, thereby concealing the bulk of the unit and reducing its intrusion into the room (see photo) — hence the description 'wall furnace'.

The RINNALS convection heaters use a 'balanced' flue fitted through an exterior wall. It's a very neat design combining two telescopic concentric pipes: one to draw air from *outside* the home and the other to expel exhaust gases outside, assisted by an internal fan (hence 'balanced'). It's more energy efficient, so the RINNALS can get away with smaller components and a more compact box.

As a consequence of this design, however, water vapour condenses in the flue and must be drained off. Rather than see this as a nuisance, Rinnal's solution is to pipe the water to a humidifier tray under the unit. As warm air leaves the heater it picks up water vapour from the tray and carries this into the room. This may make the room more comfortable by

counteracting to a degree the drying effect of the heater.

Also for comfort and energy efficiency, all these heaters have a thermostat to maintain the desired room temperature and minimise unnecessary energy use by automatically cutting in or out when there's a variation. The manual three-speed fan on the IXL and VULCANs and the automatic fan on the RINNALS help the heaters warm the room quickly and then minimise noise and output once the set temperature is reached.

MATCH YOUR HEATER TO YOUR ROOM SIZE

Gas heaters are sold according to their rated energy *input*, measured in megajoules per hour (MJ/h). Here's a guide to matching a heater to your room size:

- Small room: up to 12 MJ/h input.
- Medium room: 12-18 MJ/h input.
- Large room: 18-25 MJ/h input.
- Open plan: 25-40 MJ/h input.

In a cool climate you should aim for a heater with an input at the top end of

the quoted range, while in a moderate climate you'd choose nearer the lower estimate. As a guide, the Gas and Fuel Corporation estimates the bulk of sales in Victoria of wall furnaces and convection-only heaters is around 26 MJ/h input. We tested heaters ranging from around 20 to 40 MJ/h.

Irregularly shaped rooms, stairwells, open-plan rooms and passages should be taken into account when calculating the size of heater you need. A final decision on size is best discussed with gas show-room staff in your city or town.

THE AIM: WARM BODY AND WARM FEET

These heaters discharge warm air at foot level — where it's more useful — rather than from the top of the unit. The aim is to push warm air deep into the room and heat the room evenly, without leaving pools of cold air or creating draughts at foot level.

Using sensors placed in the test room we looked for the problem of heat stratification, which leaves your feet freezing while your brow sweats. The good news is we found all these models distributed heated air evenly around the room.

We also tested the thermostats to see if a set temperature was maintained when conditions in the test room were varied. Again, though all drifted slightly from their setting, the effect was not significant for any of the heaters. This means the heaters all offer the consumer good control over room temperature.

Appliance noise is another issue you wouldn't be able to find out from sales staff. Here, none was particularly noisy, though the IXL and VULCAN wall furnaces were slightly noisier than the RINNALS when set for 'boost', a fast fan setting for initial rapid warm-up of a cold room. The VULCAN Quasar 2067 made creaking noises during heat-up and cool-down.

Testing was carried out for us at the laboratories of the Gas and Fuel Corporation of Victoria. Details of specific safety and performance tests are provided in the notes accompanying the table on page 35. We also rated the models for ease of use and had them assessed for suitability for people with disabilities.

In summary, all the heaters gave satisfactory results for tests of electrical safety, gas leakage, ignition functioning, temperature hazard tests, noise, how evenly the model heated the test room, and unpleasant or harmful emissions. Energy efficiency is the point at which a real technical difference appears.

ENERGY LABELLING: WHAT'S IN THE STARS?

Energy labelling schemes using tags and

stickers have been devised to help consumers find energy-efficient appliances. Appliances are rated from one to six stars (the higher the number, the more energy-efficient).

Our tests discovered a problem with the two VULCANS, where the energy labels do not accurately reflect our performance results. They are labelled as five and four-star efficiency, when our lab results show only three and two stars respectively are warranted. On comparing the new results with old test data for one of these models, it seems several modifications have been made to the fan assembly, the air outlet pathway and the draft diverter since the original energy labelling tests were performed. This could account for reduced efficiency.

The question must be asked: after how many and what type of minor modifications should the appliance be resubmitted for a fresh assessment of the energy label? Here is a case where the sum of a number of minor modifications appears to have brought about a substantial change in energy performance (for at least one and possibly both VULCANS), leaving consumers with inaccurate information. This defeats the purpose of the star rating system as a meaningful consumer guide. The Australian Gas Association (AGA) and manufacturers should address this problem.

Though the IXL also returned results lower than would be expected from the energy label (four stars instead of five), in this case a difference amounting to only one star is not regarded as significant as it may be due in part to recent changes in the test method we used. In any event, the new test method is yet to be officially adopted by the AGA, though it already has general industry acceptance.

DIVERTING FEATURES

Consider these features when making your choice:

■ **Heat diverter (also called a rear register):** As an option at extra cost the IXL and VULCAN models, if mounted on an internal wall, can be installed so as to let you heat the room in front, the room behind, or both, using a heat diverter control. Up to 40% of total heat can be diverted in this way to a second room.

■ **Flush mounting:** The RINNALS are squat, bulky units which intrude into the room. In contrast you can choose to have the IXL and VULCAN models fully in the room ('console') or semi-recessed into the wall cavity. The VULCANS are also available flush mounted (that is, fully recessed). This makes them very convenient for a stud wall. (Note: the model

numbers of the products tested are for console versions — bear this in mind when discussing products with sales staff.)

■ **Inside/outside wall mounting:** The IXL and VULCAN models are designed for use on internal as well as outside walls, having a standard flue which fits inside a cavity wall and goes up through the ceiling. They are a popular choice for new homes where they can be built into the wall easily during construction. The RINNALS are designed to fit against an outside wall, though an optional flue conversion kit will allow them to vent through the roof like the others. This enables the shorter RINNALS to fit in front of an old fireplace. The RINNALS are easier to install than the wall furnaces into an existing home.

■ **Direction louvres:** These heaters all discharge warm air at foot level, through downward-angled louvres. Sideways direction control is possible with the VULCANS, which have adjustable vertical vanes, and the RINNALS (though their vanes have to be bent to change direction and may eventually break). The IXL blows straight ahead only, so precise room placement becomes more critical with this heater.

CONCLUSION

With the exception of the VULCAN Quasar 2067, the models in this test can be regarded as equal for heating performance, and all are safe and easy to use. For this reason we've based our ranking on energy efficiency, and here the RINNALS are ahead of the rest.

Taking price into account too, however, the IXL is our 'Best Buy', with good performance and a clear price advantage.

The energy ratings (star labels) of the VULCANS are out of kilter with their performance in our tests and should be revised by Vulcan to ensure consumers are not misled.

If room space is at a premium we recommend the RINNAL 553FT, which gives a lot of heat for a relatively small unit.

WHAT TO BUY

FOR LARGE ROOMS		
equal	RINNAL Energysaver 551FT	\$1235/\$1420
	RINNAL Energysaver 553FT	\$1385/\$1570
	IXL Finesse 10863S	\$925/\$977
FOR EXTRA-LARGE AREAS OR OPEN PLAN		
	RINNAL Energysaver 1001FT	\$1569/\$1772

Prices shown indicate the range found in nationwide checks in January/February 1993. They do not include installation.

PROFILES

Models are listed in order of energy efficiency within room size. Prices shown are those we found in nationwide checks in January/February 1993. They do not include installation.

FOR LARGE ROOMS

RINNAI ENERGYSAVER 551FT

Price: \$1235/\$1420

Advantages

- Very good heating performance.
- Very good energy efficiency.
- One-touch electronic ignition.
- 'Delay on' timer, up to 12 hours.
- Humidifier tray.

Disadvantages

- No diverter vent to heat another room.

RINNAI ENERGYSAVER 553FT

Price: \$1385/\$1570

Advantages

- Very good heating performance.
- Very good energy efficiency.
- One-touch electronic ignition.
- Lamp tells you when filter needs cleaning.
- Childproof control lock.
- 'Delay off' timer, up to two hours, and can set 'delay on' timers for two separate times.
- Humidifier tray.
- More heat output than the 551FT and a more advanced electronic design, in a slimmer, taller case.
- Economy mode: drops air temperature slightly so as to use less gas; this relies on radiant warming from walls and ceiling to make up the difference.
- Pre-heat feature: the unit 'learns' how long it takes to bring the room up to the set temperature by the programmed time, and will start operating in time to meet this target.

Disadvantages

- No diverter vent to heat another room.

IXL FINESSE 10883S

Price: \$925/\$977

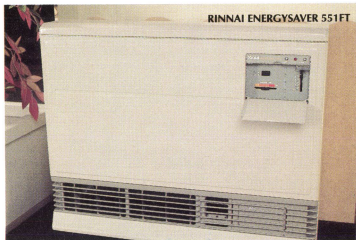
Advantages

- Very good heating performance.
- Good energy efficiency.
- Optional heat diverter to warm another room.
- Fan design means no need for regular cleaning.
- Less bulky than the RINNAIs.
- Also available as a semi-recessed version.

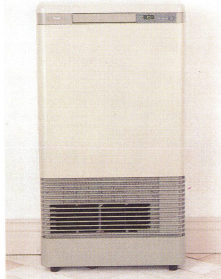
Disadvantages

- Two-handed pilot light ignition.
- No timer.
- Air direction vanes point straight ahead only, so precise placement of unit (during installation) becomes more critical.

**BEST
BUY**



RINNAI ENERGYSAVER 553FT



VULCAN QUASAR 2277

Price: \$1039/\$1215

Advantages

- Very good heating performance.
- Optional heat diverter to warm another room.
- Fan design means no need for regular cleaning.
- Also available in semi-recessed and flush-mounted versions; less bulky than the RINNAIs if installed inside wall. The flush-mounted model doesn't have an automatic timer and has to be turned on and off manually.
- Can set 'delay on' timers for two separate times.
- Adjustable vertical vanes.

Disadvantages

- Two-handed pilot light ignition.
- Timer is more difficult to use than the RINNAIs.
- Not as energy-efficient as the RINNAI and IXL heaters.

IXL FINESSE 10863S



The Vulcan Quasar 2277 (console model) looks the same as the semi-recessed Quasar 40, pictured overleaf, but has a lower energy input.

FLUED GAS WALL FURNACES AND HEATERS

1

Brand/model (in order of energy efficiency within room size)	Manufacturer/ distributor	Origin	Warranty	Price (\$)*	Stated dimensions H x W x D (mm)	Fan settings	Ignition
FOR LARGE ROOMS							
RINNAI Energysaver RHFE-551FT	Rinnai	Japan	1/2/10 (C)	1235/1420	625x770x295	2 auto	Electronic
RINNAI Energysaver RHFE-553FT	Rinnai	Japan	1/2/10 (C)	1385/1570	840x450x255	7 auto	Electronic
IXL Finesse 10863S (A)	Backwell IXL	Australia	1/2/2 (D)	925/977	1777x440x182	3 manual	Piezo
VULCAN Quasar 2277 (B)	Vulcan	Australia	1/2/10 (E)	1039/1215	2010x480x239	3 manual	Piezo
FOR EXTRA-LARGE ROOMS OR OPEN PLAN							
RINNAI Energysaver RHFE-1001FT	Rinnai	Japan	1/2/10 (C)	1569/1772	670x930x330	2 auto	Electronic
VULCAN Quasar 2067 (B)	Vulcan	Australia	1/2/10 (E)	1130/1395	2010x480x239	3 manual	Piezo

* Prices given indicate the range found in an Australia-wide survey in January/February 1993.

(A) Also available in a semi-recessed version.

(B) Also available in semi-recessed and flush-mounted versions.

(C) One year on whole unit, two years on fan (parts only), 10 years on heat exchanger (pro rata).

(D) One year on whole unit, two years on fan and burner, 10 years on heat exchanger.

(E) One year on whole unit, two years on fan (parts only), 10 years parts and labour on heat exchange and burner.

(F) Flush-mounted model has no timer.

FOR EXTRA-LARGE ROOMS OR OPEN PLAN

RINNAI ENERGYSAVER 1001FT

Price: \$1569/\$1772

Advantages

- Very good heating performance.
- Very good energy efficiency.
- One-touch electronic ignition.
- 'Delay on' timer, up to 12 hours.
- Humidifier tray.

Disadvantages

- No diverter vent to heat another room.

VULCAN QUASAR 2067

Price: \$1130/\$1395

Advantages

- Good heating performance, but a little behind the other five tested.
- Optional heat diverter to warm another room.

- Fan design means no need for regular cleaning.

- Also available in semi-recessed and flush-mounted versions; less bulky than the RINNAI if installed inside wall. The flush-mounted model doesn't have an automatic timer and has to be turned on and off manually.

- Can set 'delay on' timers for two separate times.

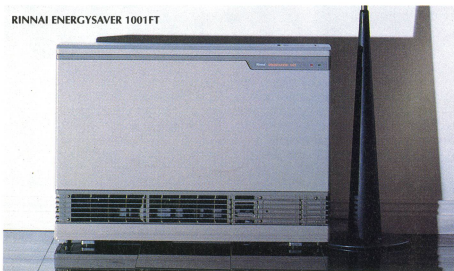
- Adjustable vertical vanes.

Disadvantages

- Two-handed pilot light ignition.
- Timer is more difficult to use than the RINNAI's.
- Not as energy-efficient as the RINNAI and IXL heaters.
- Made minor creaking noises during heat-up and cool-down.

VULCAN QUASAR 40 — the semi-recessed version of the QUASAR 2067.

RINNAI ENERGYSAVER 1001FT



2	3	4	5	6	7	8	
Timer	Humidifier tray	Heat diverter	Input: claimed/measured (MJ/h)	Maximum heat output (MJ/h)	Heating performance (%)	Energy label rating: claimed/measured	Brand/model (in order of energy efficiency within room size)
Delay on	✓	No	22/21	16	73	★★★★/☆☆☆☆	RINNAI Energysaver RHFE-551FT
Delay off/2 on/off	✓	No	23/22	16	71	★★★★/☆☆☆☆	RINNAI Energysaver RHFE-553FT
None		Option at extra cost	26/26	20	76	★★★★/☆☆☆☆	IXL Finesse 10863S (A)
2 on/off (F)		Option at extra cost	26/25	17	69	★★★★/☆☆	VULCAN Quasar 2277 (B)
Delay on	✓	No	37/34	25	74	★★★★/☆☆☆☆	RINNAI Energysaver RHFE-1001FT
2 on/off (F)		Option at extra cost	40/37	23	61	★★★★/☆☆	VULCAN Quasar 2067 (B)

equal

1 IGNITION

Gas ignition is either electronic (mains power) or by a pressure-sensitive piezo crystal switch which sparks when a button is pressed.

2 TIMER

There are two types of timer: on one you can set a delayed start ('delay on'), while the other is for setting a time for the heater to shut off ('delay off'). '2 on/off' means you can program one or two times in the one period of 24 hours for the heater to turn itself on then off.

3 HUMIDIFIER TRAY

The RINNAI heaters have a humidifier tray which collects condensation from the flue. Instead of throwing this water away, the heater directs it to a tray across which the fan blows air into the room. In this way it may counteract the drying effect of a flued gas heater on room air, leading to improved comfort. This feature was not tested.

4 HEAT DIVERTER

This allows you to divert up to 40% of heat output into a second, adjoining room, via a baffle and vent. Appropriate venting must be installed in the wall.

5 INPUT: CLAIMED/MEASURED

Gas heaters are sold on the basis of the amount of energy they use, measured as megajoules per hour (MJ/h). We tested to see if the energy actually used matched the claims of the manufacturer.

6 MAXIMUM HEAT OUTPUT

This is a measure of how much usable heat gets into the room through the heater. If you compare this to the relevant figure in the input column (column 5) you can see how much energy is lost along the way. Most of this is due to the use of a flue.

7 HEATING PERFORMANCE

We monitored heat distribution at many points within the test room to determine the evenness of heating. Measurements were taken within the occupied zone (up to a height of two metres from the floor). A high rating indicates good heat distribution; all the heaters were satisfactory.

8 ENERGY LABEL

The Australian Gas Association energy labelling schemes (star ratings) help consumers compare appliances for energy use under similar operating conditions. The best units rate six stars. The energy label is a measure of efficiency which summarises how much usable heat energy gets into your room given the amount of gas going into the heater (gas input in MJ/h). Our results show the VULCAN heaters don't live up to their claimed ratings (see *Energy labelling* on page 32).

EXCLUDED

Baxi, Emeg and Robur have been excluded from this test as their models have inputs below 20 MJ/h. Pyrox is discontinuing its wall furnace and has radiant convection heaters only. Celair and Maxol are discontinuing their flued models. Beefeater, Everdure and Paloma did not have flued models at the time of purchase for testing.

FOR PEOPLE WITH A DISABILITY

The gas heaters were assessed for people with a disability by a representative of the Independent Living Centre. The main consideration is ease of use of the controls: important points are location, and particularly ease of use of the ignition and temperature controls (the thermostat).

The VULCAN and IXL wall furnaces are harder to ignite than the RINNAIs as they have piezo ignition rather than electronic — it's a two-handed operation. Hinged front control panels on the VULCANs and IXL may make access difficult from a wheelchair. Overall the RINNAIs are easier to use.

PORTABLE TELEVISIONS

Choose one of our top five 34 cm colour televisions for the best bedtime viewing.

THEY ARE a far cry from the huge 'home cinema' televisions, but 34 cm TVs have remained popular with consumers. In fact portables are the biggest market segment by far, consistently holding over 40% of new TV sales in the past couple of years. These TVs are usually purchased as a second or bedroom set so buyers don't want to spend a fortune.

To satisfy the price-conscious 34 cm TV buyer, we purchased all available remote control models with a recommended retail price of less than \$600. Where there were two models from the same brand, we chose the most popular. Fortunately they all performed reasonably well and we can even pinpoint a thrifty 'Best Buy'.

HOW PORTABLE?

All the televisions tested weighed around 10 kilograms, which would be light enough for most people to lift without too much trouble. Those without carry handles (see table) would be more awkward to move but are still classified as portable because of their small size and weight.

They all came with an antenna in the form of telescopic rabbit's ears, which can be mounted directly on the set and therefore would be easy to transport with the TV when folded up.

WHAT YOU SEE

The SAMSUNG scored highest in our viewing panel test. It was liked by the majority of panellists and was said to have a clear picture with good colours. It showed one weak area in our additional technical picture quality tests (see *Picture quality score* on page 39) but this wasn't significant enough to become a problem when viewing.

At the other end of the scale, the AWA was scored lowest by the panellists by a significant amount. Many viewers found this set to be a bit fuzzy or blurred and to have an overall blue tinge.

HOW YOU SEE IT

An easy to use remote control is a must for portable TVs in particular, as they're so often used for watching in bed. Many of the features on the TVs in this test could not be activated without the remote anyway.



The size of these TVs means you're likely to move them from room to room — yet they didn't all have carry handles.

We found the JVC's remote the best of those tested, closely followed by the SAMSUNG and SHARP. The JVC's is larger than most others but still comfortable to hold. These three exemplify a good remote control: the buttons are generally of a good size and easy to press. They're well separated from one another so you're less likely to press the wrong one, and buttons for similar functions are grouped together. The use of different-shaped buttons and clear markings makes it easy to find the button you want.

When buttons on the remote are the same size, with little separation of groups of buttons with related functions, the resulting cluttered layout makes it difficult to hit the right button. The SANYO and TEAC suffered from this type of remote.

All the remote controls in this test let you control colour contrast and brightness, have numeric keypads for direct entry of channel numbers, and let you mute the sound at the touch of a button.

The volume level of each television is shown on-screen as a momentary bar graph when the volume is being adjusted. The PHILIPS is slightly irritating in that it doesn't display volume adjust-

ment unless its display mode is switched on, which leaves the channel number also displayed continuously in the corner of the screen.

All the TVs also give a momentary on-screen bar graph display when you adjust the picture controls, channel numbers when the channel is changed and an audio mute signal when mute is activated — although only a few keep this symbol displayed as long as the mute function is operating.

WHAT YOU HEAR

Our audio assessment revealed several of the televisions had a problem with distortion at higher volumes. The SHARP, though, started to distort at quite a low volume and we considered that, in some situations, you may not be able to turn the volume up high enough for adequate listening without causing noticeable distortion. The PANASONIC, SAMSUNG, TEAC and TEMPEST had a similar problem but the volume level before gross distortion occurred was considered adequate.

Overall the JVC and SANYO were considered the best for sound quality, with balanced sound and adequate volume.

WHAT TO BUY

None of the televisions in this test performed poorly enough in any area to be exiled to our 'not recommended' category. At the other end of the spectrum, the SAMSUNG, which had the best picture quality and came equal second overall, receives our **Best Buy** laureate. It was one of the cheapest sets tested, but was let down a little by its slightly thin sound quality, which tended to distort at higher volumes.

The JVC's good sound quality and remote control pushed it to overall top performer and its picture was reasonably well liked by the viewing panel.

Choose from the following:

JVC C-14AU	\$449/\$599
equal PANASONIC TC-14L3A	\$439/\$549
SAMSUNG CB-3351X	\$358/\$459
equal HITACHI CPT 1459	\$469/\$529
NEC N-3450	\$399/\$469

* Prices shown indicate the range found in nationwide checks in February 1993.



PROFILES

Televisions are listed in rank order. Prices given indicate the range found in nationwide checks in February 1993. Three other models not profiled but which performed quite well may also be worth your consideration at the right price: **SHARP CX-34A3**, **MITSUBISHI CT-1475AM(PW)** and **PHILIPS 14GR1236/75R**.



FOR PEOPLE WITH DISABILITIES

The following guidelines for disabled users were put together in consultation with the Independent Living Centre.

■ **The remote control** would be of prime importance, particularly for people with mobility problems. The remote controls for the **JVC** and the **SHARP** would be the best due to their uncluttered layout and good markings.

The features that were considered of benefit to disabled users were:

■ **Headphone socket:** For those with fairly severe hearing impairment. Those with mild hearing impairment should take note of any comments relating to volume range (see *What you hear*, left). Headphone adaptor units can be purchased for fitting to TVs without a built-in socket.

■ **On-screen display:** This visual feedback makes the remote control easier to manipulate. It is also easier to read channel numbers from an on-screen display as opposed to a numeric LED display. All the TVs tested had on-screen display.

■ **Full auto-tuning:** This tunes in all available stations at the touch of a single button without the need to understand the method of storing stations in particular presets.

■ **Auto-tuning search:** TVs with this feature would be physically easier to use than those with manual tuning.

■ **Teletext:** Was included with the **TEAC** as purchased. It may be an option with other models tested so check before you purchase. Teletext would be an advantage to hearing-impaired people as it offers a subtitling system.

JVC G-14AU

Price: \$449/\$599

Overall impression

While not the best-liked for picture quality, this model has a good array of features, the best remote control and good sound with a good volume range.

Other good points

- Good, well laid-out instructions.
- Full auto-tune.

Bad points

- Side-mounted speaker — the sound could be muffled if the TV stands next to a wall.

PANASONIC TC-14L3A

Price: \$439/\$549

Overall impression

Well-liked by the viewing panel, and it performed reasonably well in all other areas. The remote control was fair but button groups could have been more distinctly separated.

Other good points

- Good, well laid-out instructions.
- Full auto-tune.

Bad points

- Sound can distort at high volumes but volume range good.

SAMSUNG CB-3351X

Price: \$358/\$459

Overall impression

The viewing panel liked the picture quality of this TV best. It was let down a little by its sound quality in that it tends to distort at higher volumes, though the volume level before distortion is adequate.

Other good points

- Good, well laid-out instructions.
- Good, well laid-out and easy to use remote control.

**BEST
BUY**

HITACHI CPT 1450

Price: \$469/\$529

Overall impression

The viewing panel liked the picture quality and the TV performed adequately in all other areas. The remote control was considered reasonably good but button groups could have been a little better separated.

Other good points

- Full auto-tune.

NEC N-3450

Price: \$399/\$469

Overall impression

This TV had the second-highest picture quality score from the viewing panel and had good sound. The remote was fair but button groups could have been better defined and buttons for major controls could have been bigger and better separated.

PORTABLE TELEVISIONS

FEATURES

	1					2	3	4	5	6	7
	Brand/model (in rank order)	Manufacturer/ distributor	Origin	Price (\$)*	Warranty (years, parts and labour)	Front-mounted speakers	AV line in/out	Carry handles	Headphone socket	Full auto-tuning	Auto-tuning search
	JVC C-14AU	Hagemeyer	Thailand	449/599	1 (A)		✓/—	✓		✓	✓
equal	PANASONIC TC-14L3A	Panasonic	Malaysia	439/549	1 (B)	✓	✓/✓	✓		✓	✓
	SAMSUNG CB-3351X	Samsung	Korea	358/459	1 (C)	✓	✓/—	✓			✓
equal	HITACHI CPT 1459	Hitachi	Singapore	469/529	1	✓	✓/✓	✓		✓	✓
	NEC N-3450	NEC	Thailand	399/469	1	✓	✓/—		✓		✓
equal	MITSUBISHI CT 1475AM	Mitsubishi/AWA	Singapore	428/499	1						✓
	SHARP CX-34A3	Sharp Corp	Malaysia	429/499	1		✓/—			✓	✓
	PHILIPS 14GR1236	Philips	Singapore	449/519	1 (D)						✓
	MASUDA T 1494	Brash Holdings	Hong Kong	345/429	ns (E)	✓		✓			
equal	AKAI CTK 1420	Akai	China	375/449	1 (F)	✓		✓			
	PALSONIC 3468	NG Enterprises	China	299/379	1		✓/—	✓		✓	✓
	SANYO CPP3024	Sanyo	Singapore	414/495	1		✓/—	✓	✓		
equal	TEAC CT-M145	Teac	Korea	399/559	5		SCART (G)				✓
	TEMPEST SP34RM	Tempest	China	349/400	1		✓/—	✓	✓	✓	✓
	AWA C3428	Mitsubishi/AWA	Korea	349/455	1	✓		✓		✓	✓

* Prices shown indicate the range found in nationwide checks in February 1993.

(A) Plus one year parts and labour if registration card is returned within 14 days.

(B) Plus two years parts and labour for \$25.

(C) Three years parts and labour on picture tube.

(D) Two years on picture tube.

(E) ns = warranty not stated.

(F) Plus two years parts and labour for \$30.

(G) SCART - a connector that enables you to have one lead rather than a line in and out, to connect TV and video.

(H) Sound only.

(J) Three memories.

(K) Four memories.

1 SIMILAR MODELS AND BRANDS EXCLUDED

■ The **PALSONIC 3458** and the **3468** (tested) are technically similar and have cosmetic differences to the cabinet only.

■ The following brands of colour television are no longer imported: Fujitsu-General, Hanimex, Kambrook, Marantz, Nordmende, Princess, Saba, Voxson. The following brands do not have colour televisions in the 34 cm screen size: Blaupunkt, ITT/NAD, Loewe, Rover, Telefunken. Grundig, Goldstar and Toshiba were excluded because their 34 cm models were discontinued late in 1992. Sony released a new model too late for this test.

FEATURES

2 FRONTED-MOUNTED SPEAKERS

The models ticked in this column have front-mounted speakers. The others have side-mounted speakers, which means sound can become muffled if the unit is kept, for instance, in a cabinet or beside a wall.

3 AV LINE IN/OUT

Audio and video line inputs allow the direct connection of a video cassette recorder rather than via the aerial socket. This pro-

vides a convenient method of connection and superior picture quality from the video recorder.

Line outputs can be used with a video recorder if the TV tuner is better than the video tuner. Audio outputs can also be used to connect the TV to a stereo system.

4 CARRY HANDLES

Considering these are portable TVs, the presence of carry handles makes moving them easier.

5 HEADPHONE SOCKET

A headphone socket is a great advantage if you have a hearing impairment. It may also be useful if you want to watch TV in the bedroom while someone else is trying to sleep.

8 FULL AUTO-TUNING

With this feature all available TV stations can be tuned in with the press of a single button. The model automatically sweeps through the bands, detecting and storing under preset numbers all available channels. The disadvantage of this is that stations are stored one after the other as they're found, so channel nine, for instance, will not appear on preset nine.

7 AUTO-TUNING SEARCH

When tuning in TV stations, models ticked can automatically search the bands to locate a broadcasting channel. When a station is found, it stops and you can either assign it to a preset or search for the next station. If the TV doesn't have this feature you need to hold a button down to scan the frequency bands and detect when a program is being received.

8 SKIP

This refers to skipping 'blank' presets. All TVs provide more presets (spaces for storage of TV stations) than most users would need. A skip feature allows unused presets to be skipped over when scanning through the channels with the channel up/down buttons.

9 BLANK CHANNEL MUTING

With this blank channel muting feature, if you accidentally change to a channel that isn't broadcasting, the TV mutes the sound (and on some models the picture) so that noise is not heard. A coloured screen appears on the TVs that also mute video.

10 PERSONAL PREFERENCE

This feature allows you to store picture information (the colour, contrast and bright-

		PERFORMANCE									
		9	10	11	12	13	14	15			
Blank channel muting	Personal preference			Audio score (%)	RF sensitivity score (%)	Ease of use score (%)	Picture quality score (%)	Overall score (%)	Brand/model (in rank order)		
✓	✓ (J)	74		100	80	67	74		JVC C-14AU		
		66		100	66	71	72		PANASONIC TC-14L3A		
✓ (H)	✓	54		100	69	75	72		SAMSUNG CB-3351X		
✓	✓ (J)	61		95	67	71	71		HITACHI CPT 1459		
		67		100	56	73	71		NEC N-3450		
	✓ (K)	64		100	59	68	69		MITSUBISHI CT 1475AM		
		45		100	70	71	69		SHARP CX-34A3		
✓ (H)	✓	55		90	65	69	68		PHILIPS 14GR1236		
		58		100	62	64	66		MASUDA T 1494		
		55		92	62	64	65		AKAI CTK 1420		
✓ (H)		57		100	57	64	65		PALSONIC 3468		
	✓	70		94	47	65	65		SANYO CPP3024		
✓ (H)	✓	58		94	50	66	64		TEAC CT-M145		
✓ (H)		59		100	55	62	64		TEMPEST SP34RM		
✓ (H)		56		100	65	58	63		AWA C3428		

ness levels) you prefer. Once set, this information can be recalled at will.

OTHER NOTABLE FEATURES

- The **TEAC** can receive and display teletext information; teletext may be available as an option on other models so, if you're interested, enquire when purchasing.
- The **AWA**, **JVC** and **PALSONIC** have an on-screen clock.
- The **SANYO** has a 'preset scan' feature which automatically cycles through each available channel and pauses for a short time on each. The **SANYO** also has a 'secret channel', which restricts access to certain presets.
- All sets have an auto-off timer, which enables you to preset the time at which you want the TV to turn itself off.

PERFORMANCE

11 AUDIO SCORE

The major portion of the audio score was derived from a subjective test using both off-air programs and a selection of music material from a compact disc source modulated through the laboratory TV pattern generator. Several measurements were also made of the sound output from the speakers.

Total harmonic distortion was measured;

it would be noticeable as a harshness to the sound when listening and several TVs tested suffered from this, particularly at high volumes (see *What you hear* on page 36 for details).

12 RF SENSITIVITY SCORE

This is a measure of how well the TV picks up weak radio frequency signals. None of the TVs in this test should have any problems picking up channels in most reasonable reception areas.

13 EASE OF USE SCORE

The ease of use of the remote control was considered of prime importance when assessing the overall ease of use of the TVs because the remote would be the most often used method of controlling them. Remotes that were comfortable to hold, with buttons that were well-sized and spaced with good pressing action and grouped according to their function scored well. Instructions, front panel layout, ease of tuning and on-screen display were also assessed.

14 PICTURE QUALITY SCORE

Picture quality was assessed in two parts. The major component (75%) in the scoring was the results obtained from a viewing panel where panelists rated the picture

quality of each model watching off-air broadcasts. The remaining 25% came from examination of a variety of test patterns. The areas examined were:

- **Luminance resolution** — an indication of the potential sharpness of the picture.
- **Convergence** — this indicates the TV's ability to accurately position its three colour guns across the screen. (This was the **SAMSUNG**'s one weak spot for picture quality.)
- **Video distortion** — this indicates problems with the geometry of the screen if there is distortion of the image across the area of the screen.
- **Colour balance** — an assessment of the overall balance between the saturation of different colours on the screen; whether some colours are brighter than others.
- **Colour smearing** — this is an assessment of the amount of 'bleeding' of one colour into another.

There were no significant problems with any of the TVs in these technical picture quality tests.

15 OVERALL SCORE

The overall score comprised:

- Audio score: 20%
- Sensitivity score: 10%
- Ease of use score: 20%
- Picture quality score: 50%

BUDGET-PRICED SEWING MACHINES

You won't hear violins when you sew, and a couple of machines gave problems, but you'll find the best of the class satisfactory for basic sewing.

THE DIFFERENCES between a cheap sewing machine and one costing more than twice the price are said to be quality and convenience.

While some of this 'quality' undoubtedly has to do with durability — you should be able to use a good machine for years without it developing so much as a rattle — *stitch* quality is essential for good sewing, and this is what we looked for, along with ease of use. When you add these two assessments together you can draw a fairly accurate picture of each machine.

We hope to work out a way of assessing long-term durability for future sewing machine tests, but in the meantime the scores on page 45 are good indicators of sewing performance and convenience, and we have rated the machines accordingly.

WHAT WE BOUGHT

We bought 10 budget-priced machines with no computerised features, ranging from \$300 to \$500 — the type of machine likely to be chosen by people who just need a machine for basic or infrequent sewing and those on a budget.

Each one was tested for a range of stitches on 10 different fabrics including rubber-backed curtaining, polyester/cotton knit, denim, fleecy stretch, lycra and organdie.

Additionally, we invited each manufacturer to our laboratory to demonstrate their machine using the same fabrics and threads we used in our tests. They could alter or adjust their machines to get the best results, but only according to the instruction book.

We also compared these machines for stitch quality to a top-of-the-range (but still non-computerised) machine and, as a group, to the computerised models in our last test (CHOICE, June and September 1991). The consensus at the end of the day was that although top-of-the-range machines do achieve better stitch quality and generally offer a smoother and more convenient operation — often with lots more features — the budget-priced machines we tested are fine for basic work and infrequent sewers.



Our expert sewer rated the machines for stitch quality and ease of use.

STITCH QUALITY

Stitch quality helps your sewing look professional. It refers to the appearance of the stitches — they should look identical, be evenly spaced, and not pucker the fabric (see photos on page 42).

If the tension is correct, the 'lock' (the point where the top and bottom threads are locked together) should sit between the layers of fabric being sewn and not be visible on the top or bottom of the material. (The exception is making buttonholes, when the tension should be set so the 'lock' appears at the bottom to give a more rounded look.)

Our professional sewer scored the stitch quality based on the very best you could expect from a sewing machine. On this basis, most of the individual scores were in the 40–60% range, whereas a quality machine would be expected to deliver stitch quality in the 70–80% range. To an untrained eye, however, it may be initially hard to pick the difference.

SHOULD YOU BUY A MORE EXPENSIVE MACHINE?

We put all the machines, plus the top-of-the-range non-computerised machine, through the same stitch quality tests.

The top-of-the-range machine clearly

had better stitch quality than even the best of the budget machines. It still wasn't perfect, though, and like the budget machines struggled to create good stitches on the 100% polyester and cotton/polyester knit, and the lycra two-way stretch.

Six of the budget machines scored from 51% to 53% for overall stitch quality, effectively making them equal best performers, ahead of the other four machines, which didn't manage even a 50% score.

Our tester also remarked that the top-of-the-range machine sounded smoother and didn't vibrate as much as the cheaper machines.

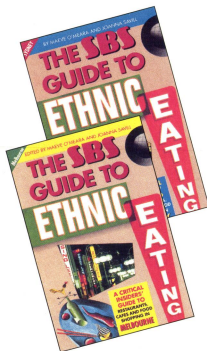
PROBLEMS

The HUSKYSTAR 60 had major problems. Its motor seized only about 20 minutes into the test. Husqvarna's mechanic was unable to fix it on-site and the machine continued to seize when it was run, so we bought a new one in order to continue testing.

We experienced problems of a different kind with this second machine, which Husqvarna again couldn't fix properly on-site. The upper thread kept breaking due to the thread coming off the take-up lever. After consulting the service man-

(continued on page 44)

CONSUMER BOOKSHELF

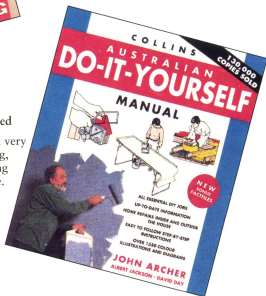


THE SBS GUIDE TO ETHNIC EATING
 Sydney
THE SBS GUIDE TO ETHNIC EATING
 Melbourne
 \$14.95 paperback 214pp

The authors of these fascinating guides are two SBS staffers who pooled the collective wisdom of their colleagues on the best places to eat (and to buy ingredients) for the many cuisines which can be sampled in these cities. Some treasured recipes are also included.

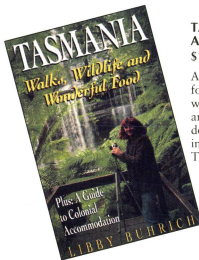
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An accessible, fully illustrated and very comprehensive guide to renovating, repair, maintenance and decorating projects in and around your home. A good home reference.



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A delightful, inspiring and practical guide for anyone planning a holiday in Tasmania, with information about interesting walks and drives (city and bush), where to buy delicious food and where to stay (especially in historic houses). Includes recipes using Tasmanian ingredients.



TEACH YOURSELF DOS INCLUDING DOS 5
 \$14.95 paperback 216pp

A new edition of this popular guide to the most common operating system for PCs, which takes into account the upgrading of DOS to version no. 5.



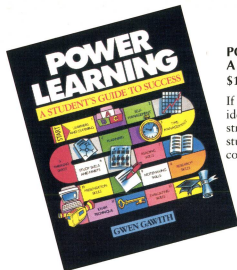
THE CHOICE GUIDE TO BABY PRODUCTS
 \$14.95 paperback 176pp

Buying for a baby can be an expensive exercise, and not all products are safe. Our popular guide helps by providing general and specific buying advice for a baby's requirements.



THE SURVIVAL PEST PACK
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\$15 paperback 70pp
 This book will help you find and recognise the different types of pest which attack timber, and prevent infestations occurring in the first place. It also gives step-by-step instructions on what to do if you do find pests.

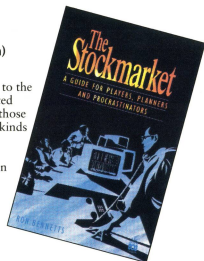


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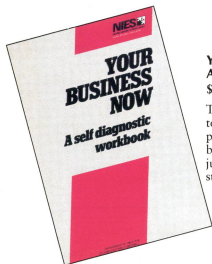
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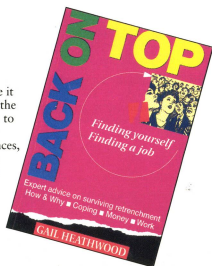
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A self-diagnostic workbook
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This very thorough workbook enables you to undertake a detailed evaluation of the performance of your business, and then to build on that detail to develop overall judgments about performance and future strategies.



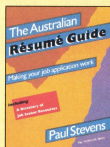
BACK ON TOP
\$11.95 paperback 117pp

Retrenchment — what it is, how to see it coming, and how to cope with it — is the subject of this book. It offers guidance to those affected on how to recover their self-esteem, how to manage their finances, how to find a job. It also includes case studies on how others have coped and found new jobs or new directions.



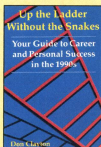
HOW TO BUY A PERSONAL COMPUTER
8th edition

\$9.95 paperback 60pp
A popular guide, aimed at those with little prior knowledge of computers. This latest edition has new sections on Windows and other graphic-user interfaces, and memory.



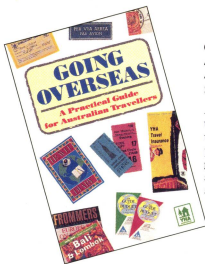
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A practical workbook to help you prepare both résumés and accompanying letters in the best possible way.



UP THE LADDER WITHOUT THE SNAKES
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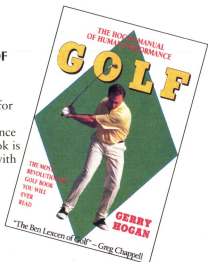
A handbook to creating a successful career balanced with a fulfilling personal life. Questionnaires and worksheets are included to help you tailor a career plan and cope with challenges such as redundancy, mid-life crises or burn-out.



GOING OVERSEAS

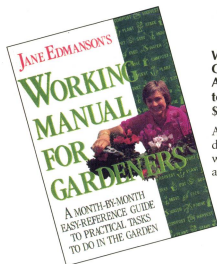
A practical guide for Australian travellers

A succinct guide to what you need to know to travel overseas successfully, including topics such as cheap air tickets, money, passports and visas, what to pack, the guided tour vs going it alone, budget accommodation, shopping, photography, and working overseas.



GOLF — THE HOGAN MANUAL OF HUMAN PERFORMANCE

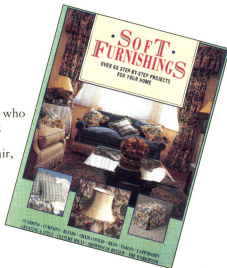
Exploring the laws of physics as a basis for creating a successful golf swing, Gerry Hogan challenges orthodoxies about stance and other 'sacred cows' of golf. This book is all about getting you to swing the club with maximum mechanical efficiency.



WORKING MANUAL FOR GARDENERS

A month-by-month easy-reference guide to practical tasks to do in the garden

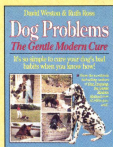
A very good guide to what needs to be done in the garden throughout the year, with useful background information and helpful tips.



SOFT FURNISHINGS

Over 65 step-by-step projects for your home

This illustrated guide will help anyone who is reasonably competent with a sewing machine to make soft furnishings. It includes cushions, curtains, blinds, chair, bed and table covers, lampshades, equipment, fabrics, and ideas for co-ordinating your decor.



DOG PROBLEMS

A guide to solving your dog's behavioural problems without using force. It covers how to train a puppy to become the perfect dog; what is inherited; instinctive behaviour; how dogs learn; and very clear guidance on curing common problems.



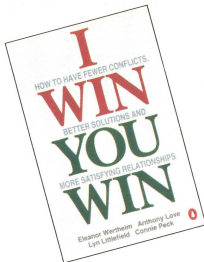
Virginia Hill's MICROWAVE COMPANION

This book is very informative about microwave cooking techniques, and suitable accessories and utensils. It includes recipes for many traditional favourite dishes adapted to microwave cooking (even playdough!).



HOUSEHUNTING

A useful guide which takes you through all the steps of finding a property, arranging the finance, having the property inspected and the legal requirements, plus tips on buying at auction or by private sale.

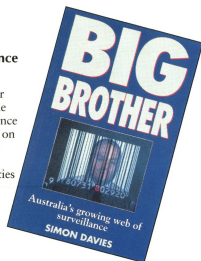


I WIN: YOU WIN
How to have fewer conflicts,
better solutions and more
satisfying relationships
\$16.95 paperback 260pp

A team of Australian psychologists has written this guide to negotiation and conflict resolution skills, with case examples to illustrate their points. Learn how to apply these skills in various situations at home and at work, with one other person or in a group, to resolve conflicts satisfactorily.

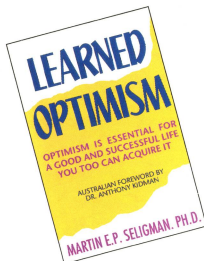
BIG BROTHER
Australia's growing web of surveillance
\$16.95 paperback 184pp

What happens after we fill out a form for the government or for a purchase of some sort? This book argues that the convergence of all the computerised information held on us could very shortly mean that ours is a society under total surveillance, with ominous consequences for our civil liberties and our social fabric.



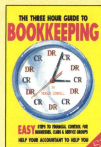
LEARNED OPTIMISM
\$17.95 paperback 319pp

The author, psychologist Dr Martin Seligman, draws on his 25 years of research to demonstrate how optimism can have measurable benefits to our health and happiness. The book includes tests to gauge your level and style of optimism and pessimism, and also teaches practical techniques to refute negative thoughts and attain an optimistic outlook.



BUILD YOUR OWN GREEN TECHNOLOGY
\$19.90 paperback 195pp

This book is based on articles from *Soft Technology*, the magazine of the Alternative Technology Association, with ideas for projects such as solar water systems, wind generators, waterwheels, 12- and 32-volt power systems, greenhouses, bicycle trailers, solar-, electric- and alcohol-powered vehicles, and a methane digester.



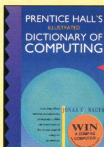
THE THREE HOUR GUIDE TO BOOKKEEPING
\$8.95 paperback 56pp

This guide explains in easy-to-read yet precise detail exactly how to manage the basics of financial record-keeping. It will be useful to everyone who has to maintain books of account, but dreads the task.



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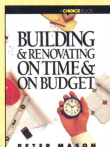
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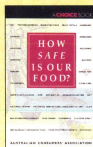
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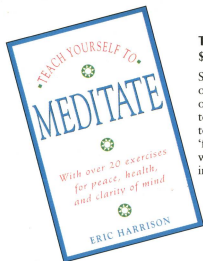
What should happen during building or renovation jobs, and the best ways of directing those you employ to build, maintain or improve your home. Clear checklists for common projects are given.



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This book is a well-researched survey of the issues involved with food safety in Australia today. It tackles topics such as pesticide residues, additives, food poisoning, water quality, organic food, labelling regulations, imported foods, contamination in seafood, and exactly what is a healthy diet.



TEACH YOURSELF TO MEDITATE

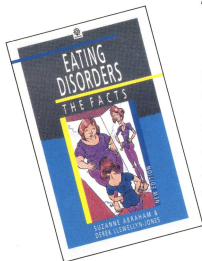
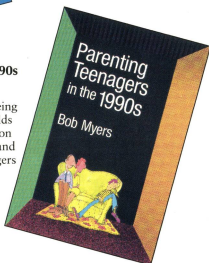
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\$14.95 paperback 148pp

This book aims to help you cope with being the parent of adolescents — 'two-year-olds with muscles'. It provides practical help on setting limits, handling power struggles and communication gaps, and helping teenagers to make their own adult decisions.



EATING DISORDERS: THE FACTS

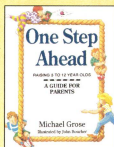
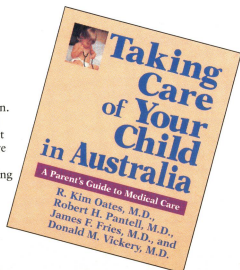
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A new, extensively revised edition of this readable guide to the eating disorders anorexia nervosa, bulimia and obesity, answering the questions: what causes these disorders? How are they diagnosed? What treatments are available and how successful are they?

TAKING CARE OF YOUR CHILD IN AUSTRALIA

A parent's guide to medical care
\$28.95 paperback 486pp

This book will help all parents to make decisions about the health of their children. Starting with pregnancy and childbirth, it contains sound medical advice about most of the complaints and diseases children are likely to encounter up to and including adolescence. It also has sections on selecting a doctor, common tests, hospitalisation, safety around the home, and useful medications. A valuable home reference.



ONE STEP AHEAD

\$16.95 paperback 234pp

The author, an experienced parent educator, explains practical child-raising ideas that work. His approach promotes self-reliance, resourcefulness and self-discipline in children. The book includes a troubleshooting section outlining strategies for 35 common problems.



CARING FOR OLDER PEOPLE

\$15.95 paperback 176pp

What will you do if a relative becomes ill or otherwise unable to live independently? This guide has practical suggestions for the carers themselves in coping with the stresses involved. It also canvasses all the options available and their costs, and gives advice on how to choose between them, and their financial and legal implications.



YOUR HEALTH RIGHTS

New edition
\$14.95 paperback 229 pp

It is important to be aware of your rights in your encounters with the medical system. This comprehensive guide covers topics such as consent to and confidentiality of treatment, access to medical records, Medicare, care for the aged and how to make a complaint.

PROFILES

Machines are listed in rank order.
Prices shown indicate the range found
in nationwide checks in February 1993.



BERNETTE 730

Price: \$389/\$499

Overall impression

One of the two machines well ahead of the others for ease of use, with reasonable sewing performance (among the top six). Equal top scorer overall.

Good points

- The best overall on heavier fabrics such as denim, linen and medium-weight cotton, and average for other fabrics.
- The best at blind hem stitch, and marginally the best at normal straight stitching.
- Can do triple zigzag stitch, which makes sewing stretch fabrics easier.
- You can get to the accessories compartment easily without removing the sewing table.
- Good instruction booklet, although one point in the instructions does not correspond with what's on the actual controls.

Bad points

- Poor buttonholes on cotton/polyester knit fabric.

JANOME MYSTYLE 20

Price: \$369/\$449

Overall impression

One of the two quietest machines we tested, and clearly equal best for ease of use, with reasonable sewing performance (among the top six). Equal top scorer overall. Janome models have rated significantly quieter than most brands of their class in three consecutive CHOICE sewing machine tests.

Good points

- The only machine (with the exception of the PFAFF) to have decorative stitches.
- The best for sewing the light fabrics (organize and 100% polyester weave), and also good on rubber-backed curtain fabric.
- Equal best for buttonholes (and it comes with a buttonhole foot), and best for zigzag stitch, multiple zigzag and standard overlocking.
- Can do triple zigzag stitch, which makes sewing stretch fabrics easier.
- Accessories compartment easy to get at without removing sewing table.
- One of the two easiest machines for loading the bobbin because it is loaded from the top; it also has plastic see-through bobbins so you can see how much thread is left.
- Easy to change light bulb.
- Convenient extra threadcutter (though it tends to graze the back of your hand during sewing).
- Good instruction booklet.

Bad points

- The stretch overlock and triple zigzag stitches performed poorly on lycra — which will not trouble everyone, but is worth noting if you're planning to make lots of leisurewear or dance/gym costumes.

PFAFF HOBBY 420

Price: \$399/\$549

Overall impression

Among the top six for sewing performance, but was pulled down a little by only an average ease of use score.

Good points

- The only machine (with the exception of the JANOME) to have decorative stitches.
- Has more preset utility stitches than any of the others.
- Generally good with stretch fabrics.
- Equal best for multiple (three-step) zigzag stitch, one of the best three for ordinary straight stitch, and easily the best at overlocking on stretch fabric.
- Can do triple zigzag stitch, which makes sewing stretch fabrics easier.
- You can get to the accessories compartment easily without having to remove the sewing table.
- Easy to thread.
- The only machine with a hard plastic carry case.

Bad points

- Neither lint brush nor seam ripper supplied — you can buy both separately, but they're thoughtful inclusions with most other machines tested.
- Buttonhole foot not included, but can be purchased as an optional extra.



BROTHER BOUTIQUE 10

Price: \$299/\$349

Overall impression

The quietest machine of those we tested, and among the top six for sewing performance, but only average for ease of use.

Good points

- A reasonable performer on all the fabrics tested.
- One of the three best for normal straight stitching, and a close second for stretch overlocking.
- Very clear stitch selection indication.

Bad points

- Faulty faceplate became damaged by overheating and needed to be replaced. Make sure the model you buy has the new larger heat-resistant faceplate.
- Stitch width can only be changed to certain preset widths.
- Poor buttonholes on cotton/polyester knit fabric.
- Doesn't have triple zigzag stitch for sewing stretch fabrics.
- No lint brush supplied to aid regular cleaning.



TOYOTA 4080

Price: \$295/\$459

Overall impression

Reasonable for sewing performance (among the top six) and ease of use. The lightest machine tested, and also the noisiest.

Good points

- The top scorer for sewing denim, and average for most other fabrics.
- Equal best for normal and multiple zigzag stitches, and one of the best for stretch overlocking.
- Can do triple zigzag stitch, which makes sewing stretch fabrics easier.

Bad points

- One of the worst for buttonholes.
- Stitch width can only be changed to certain preset widths.
- Blind hem foot not supplied.
- Difficult to get the right stitch selection at times—the wrong (adjacent) stitch gets set.
- Difficult to free the hand wheel initially; it freed up with use.
- No lint brush supplied to aid regular cleaning.



ELNITA 200

Price: \$289/\$499

Overall impression

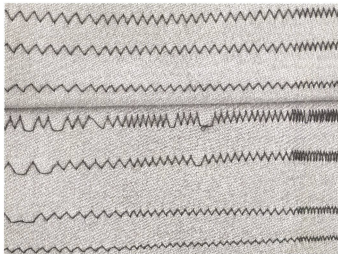
The fastest machine tested, and reasonable for sewing performance (among the top six), but the lowest score for ease of use.

Good points

- A reasonable performer on most fabrics except polyester/cotton knit.
- Equal best for buttonholes (and comes with a buttonhole foot), and among the top performers for normal straight stitch and standard overlocking.
- Light bulb very easy to change.

Bad points

- One of the worst for ordinary zigzag stitch, blind hem stitch and standard overlocking.
- Stitch width can only be changed to certain preset widths.
- Doesn't have triple zigzag stitch for sewing stretch fabrics.
- Stitch length dial difficult to operate.
- Stitch selection dial stiff to use.



Zigzag is one of the most commonly used stitches so it's important a machine does it well on all fabrics. The Janome was overall best for zigzag and the Singer the worst. On polyester/cotton knit fabric the Janome coped easily with the stretchiness of the fabric (top), while the Singer missed stitches at most stitch widths (bottom).



The 'lock' where the two threads meet should be between the two pieces of fabric; on thin 100% polyester, the Janome succeeded in keeping the lock invisible (top), whereas it became clearly visible on the Singer, particularly when the stitch was set wider (bottom).



GLOBE M-44

Price: \$299/\$399

Overall impression

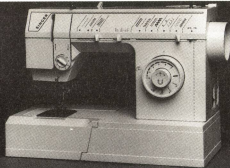
Scored less than 50% on our sewing performance scale and about average for ease of use. It was also the slowest machine.

Good points

- Second-best for stretch overlocking.
- Can do triple zigzag stitch, which makes sewing stretch fabrics easier.
- Easy to thread.
- Light bulb easy to replace.
- Has a finger guard around the needle.

Bad points

- Couldn't score 50% for stitch quality on any of the fabrics tested, regardless of weight; was particularly poor on cotton/polyester knit.
- Scored only 43% for ordinary straight stitching; three other stitches also brought down its score: triple straight stitch (good for reinforcing seams), multiple zigzag and blind hem stitch.
- No accessory compartment, but a separate box is provided.



SINGER 5808C

Price: \$299/\$419

Overall impression

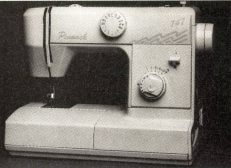
Average for ease of use but couldn't manage even 50% on our sewing performance scale.

Good points

- One of the two easiest machines for loading the bobbin because it is loaded from the top; it also has plastic see-through bobbins.
- Can do triple zigzag stitch, which makes sewing stretch fabrics easier.
- Very clear stitch selection indication.

Bad points

- Couldn't manage 50% for stitch quality on any of the materials tested, but seemed to have particular trouble with heavier fabrics such as denim, linen and medium-weight cotton.
- The worst for normal zigzag and second-worst (with the GLOBE) for ordinary straight stitching, which are probably the two most used stitches. Other stitches generally below average quality too.
- Has only one cotton spool and no provision for attaching another. This means you can't sew with twin needles, or refill a bobbin without unthreading the needle.
- No accessory compartment, but a box is provided.
- No dustcover or carrying case supplied.
- Seam ripper and lint brush not supplied.



PINNOCK 747

Price: \$299/\$459

Overall impression

The worst for sewing performance, with particularly poor normal straight stitching (it scored only 32%) — you don't have to put up with this in a sewing machine.

Good points

- One of the best for normal zigzag and standard overlocking.
- Can do triple zigzag stitch, which makes sewing stretch fabrics easier.
- You can get to the accessories compartment easily without having to remove the sewing table.

Bad points

- The lowest scorer for five of the 10 fabrics we tested on, and well down the list for most of the others.
- A poor score for buttonholes as well as straight stitching.
- Blind hem foot not supplied.
- Very poor instructions. Reference was made on the manual's cover to four models, none of which was the 747 tested; in fact it's referred to as the N690. Some photos difficult or impossible to decipher.
- Stitch length selector markings not easy to line up.
- No lint brush supplied to aid regular cleaning.



NOT RECOMMENDED

HUSKYSTAR 80

Price: \$299/\$399

Overall impression

Made our 'not recommended' category in spite of its overall score equalling that of the TOYOTA and BROTHER because two samples of the model showed severe problems very early on in use. Neither could be fixed on-site by Husqvarna. Consumers shouldn't have to put up with breakdowns like this.

SEWING MACHINES

	Brand/model (in rank order)	Manufacturer/ distributor	Origin	Price (\$)*	Warranty (years)	Weight (kg)	Noise (dB)	Fastest spe (stitches minute)
equal	BERNETTE 730	Bernina	Taiwan	389/499	1	9.3	70	781
←	JANOME Mystyle 20	Janome Sewing Machine	Taiwan	369/449	1	8.3	67	814
	PFAFF Hobby 420 (A)	Pfaff	Taiwan	399/549	not stated (B)	8.2	70	744
equal	BROTHER Boutique 10	Brother Industries	Taiwan	299/349	1	8.1	66	796
	TOYOTA 4080	Aisin	Taiwan	295/459	1	7.2	77	835
	ELNITA 200	Elna	Taiwan	289/499	1	8.3	74	938
equal	GLOBE M-44	Bernina	Taiwan	299/399	1	9.6	73	722
	SINGER 5808C	Singer	Brazil	299/419	1	8.7	75	897
	PINNOK 747	CFM Industries	Taiwan	299/459	1	8.6	69	872
	NOT RECOMMENDED							
	HUSKYSTAR 60	Husqvarna	Thailand	299/399	not stated	9.6	71	794

* Prices shown indicate the range found in nationwide checks in February 1993.

(A) This model has been superseded by the 422 but may be still available in some shops.

(B) Distributor informs us the warranty is for one year.

ager, the representative who had called to demonstrate the machine used a pair of pliers to squeeze closer together the jaws of the take-up slot, and continued sewing. But as the sewing tests continued the thread continued to jump off the top thread tensioner and ruin the stitches.

Since neither of these problems (with two samples of the model) could be rectified by the company without taking the machine away, let alone by the unwary buyer, we decided to put the HUSKYSTAR in our 'not recommended' category.

The BROTHER had an overheating problem in that the faceplate on the machine became unacceptably warm — eventually the light bulb blew. Part of the faceplate was later found to be discolored and distorted. We noticed the replacement faceplate featured a larger heat shield. As the machine gave no further trouble it stays in our *What to buy* list, but if you buy one, make sure it has the improved faceplate.

EASE OF USE

Our sewer found the BERNETTE and the JANOME were much easier to use than the rest of the machines.

Small things can make a difference. For example, only two machines, the JANOME and the SINGER 5808C, enable the user to access the bobbin from the top instead of underneath the sewing bed. This convenience is even further enhanced when the drop-in bobbin case also has a see-through cover, as does the JANOME's, and the bobbins are see-through plastic, so you can see how much thread is left.

You often need to adjust the length of the stitches, and all the machines have rotary knobs to do this, although on some machines the length is preset for stretch stitches. To get a narrower or wider zigzag stitch you need to be able to adjust the stitch width. The GLOBE M-44 and the SINGER use sliding switches to do this, while on the PFAFF, BERNETTE, HUSKYSTAR, JANOME and PINNOK the width is adjusted using rotary knobs. Either kind was just as easy to use. The stitch width on the other machines can only be changed to certain preset widths, so it can't be adjusted as finely. Our expert sewer considers infinitely variable stitch width control gives more flexibility.

GETTING THE BEST OUT OF YOUR MACHINE

■ Correct tension means the fabric will not pucker. Sew a sample using an offcut of your fabric before beginning any project, and adjust the tension if necessary.

■ Replace the needle after approximately 8-10 hours of sewing, otherwise stitch quality might deteriorate due to the worn tip.

■ The gauge of the needle should always be balanced with the fabric weight and thread thickness to produce a good result — the finer the fabric, the finer the needle.

■ Never try to sharpen your needles by sewing over sandpaper — the grains of sand will fall down into your machine and scour the bobbin race.

■ There is a variety of needle systems, and some machines require a particular type of needle to perform well. For ex-

ample, one system is designed with its needles having a scarf or cutout at the rear just above the eye to allow the hook point (which makes the lock in the stitch) to get as close as possible to the needle without hitting it — thus limiting the possibility of slipped stitches. If a machine which needs this system of needle was fitted with a non-scarf needle, the hook could get damaged.

To ensure good sewing results and avoid possibly damaging your machine, make sure you buy and use the replacement needles recommended in the instructions.

WHAT TO BUY

The machines' overall scores are very close, ranging only from 50% to 57%. However, this combination score hides some significant differences. The BERNETTE and the JANOME were clearly easier to use than the others, while the HUSKYSTAR, GLOBE, SINGER and PINNOK couldn't even manage a 50% score for sewing performance. We think a basic or infrequent sewer would be quite happy with any of the following six machines — see which one you can get for the best price.

equal	BERNETTE 730	\$389/\$499
	JANOME Mystyle 20	\$369/\$449
	PFAFF Hobby 420	\$399/\$549
equal	BROTHER Boutique 10	\$299/\$349
	TOYOTA 4080	\$295/\$459
	ELNITA 200	\$289/\$499

Prices shown indicate the range found in nationwide checks in February 1993.

2	3	4	5	
Preset utility stitches	Sewing performance score (%)	Ease of use score (%)	Overall score (%)	Brand/model (in rank order)
14	52	71	57	BERNETTE 730
16	51	71	57	JANOME Mystyle 20
18	53	63	56	PFAFF Hobby 420 (A)
9	52	60	54	BROTHER Boutique 10
16	51	62	54	TOYOTA 4080
10	51	58	53	ELNITA 200
14	46	65	51	GLOBE M-44
11	46	62	51	SINGER 5808C
16	45	60	50	PINNOCK 747
NOT RECOMMENDED				
10	49	64	54	HUSKYSTAR 60

ACCESSORIES

All the machines came with:

- Several presser feet — usually one called 'general purpose' plus zipper and button-hole feet. Others sometimes supplied included overlock, darning, blind hem, button and satin stitch feet, and all the machines had others that could be bought as optional extras.

- Three bobbins.

- Seam ripper (except the PFAFF and SINGER) for opening up buttonholes, unpicking mistakes and cutting the thread close to the material.

- Box to hold accessories — it was built into the machine on all but the GLOBE and SINGER, which provided a separate box.

- One light bulb.

FEATURES

All the machines have the following features:

- A 'free arm', which enables you, for example, to sew a difficult seam, such as a cuff.

- Stitch length control.

- Reverse sewing ability.

- Upper thread tension adjustment.

- Bobbin thread tension adjustment (though the instructions for the JANOME and SINGER made no mention of this.)

- Built-in thread cutter.

None of the machines has:

- A retractable power cord.

- A reduced-speed facility for sewing difficult bits.

1 FASTEST SPEED

This was measured sewing two layers of polyester/cotton weave fabric.

2 PRESET UTILITY STITCHES

We rated the machines on seven commonly used stitches (see *Sewing performance*, below), but all provide several others too. The JANOME and PFAFF also have four decorative stitches each, though neither has an alphabet or numerals.

----- Straight

~~~~~ Zigzag

===== Triple straight stitch

~~~~~ Multiple zigzag

□ Buttonhole

~~~~~ Stretch overlock

~~~~~ Blind hem stitch

~~~~~ Triple zigzag

## 3 SEWING PERFORMANCE

The machines were evaluated on their quality of stitch for seven stitches on 10 different materials.

■ The stitches were: straight, zigzag, triple straight stitch (that is, going over the same stitch three times for extra strength), multiple zigzag (where each angle of the zigzag is made up of three stitches), button-hole, stretch overlock and blind hem stitch (which provides 'invisible' hem stitching). All but the BROTHER and ELNITA can also do triple zigzag (going over the same stitch three times for extra strength) and smocking: smocking was not considered essential and was not included in the scoring, while triple zigzag is noted in *Ease of use*, below. (You'll probably find these stitches called by slightly different names in instruction books — we've standardised the names.)

■ The 10 materials were: linen, denim, medium-weight cotton, light cotton organdy, cotton/polyester weave, 100% polyester weave, cotton/polyester knit, fleecy stretch, lycra and rubber-backed curtain fabric.

## 4 EASE OF USE

This rating took into account instructions, setting up for sewing, the ease of using controls, and the use of different presser feet. We also adjusted the score depending on whether the machine could do triple zigzag stitch, as in our expert sewer's opinion this stitch makes it easier to sew stretch fabrics such as lycra. The BROTHER and ELNITA don't have this stitch.

## 5 OVERALL SCORE

The above two factors were weighted as follows to give the overall score:

- Sewing performance: 70%.

- Ease of use: 30%.

## FOR PEOPLE WITH DISABILITIES

The JANOME and the SINGER were considered the easiest to use by people who have difficulties with manual dexterity due to arthritis. The BERNETTE and the GLOBE were also considered good except that loading the bobbin would be a bit difficult.

People who are visually impaired but are still able to sew might find the BROTHER and the SINGER easier to use, as these machines have the clearest markings



## GREEN PAGE

### ENVIRONMENTAL LIVING

**A**N EXHIBITION of products and services which can help you reduce your impact on the environment is being held in Melbourne from April 10 to 18. The fourth National Environment Expo will be in the Royal Exhibition Building, gallery level, hosted by the

Commission for the Future and supported by the Victorian Government.

Its focus is to be on what individuals can do to protect the planet — saving energy, growing healthy food safely, building energy-efficient housing, and using fuel-efficient transport. Industry

and environmental groups and government departments will be there, with displays and advice on how to find workable solutions to everyday environmental problems.

### GREEN SPOTLIGHT

**J**UNK MAIL really gets up people's noses. But it's not only the privacy and irritation factors which offend: we regularly receive letters to the **Green Spotlight** pointing out that this kind of promotional matter also represents a waste of the materials and energy consumed to make it. One reader was impressed by a large colour brochure from the National Australia Bank about its FlexiPlus Mortgage account, which came in a thick cardboard folder, accompanied by a letter. It was sent to MR of Logan Village, Queensland, after she rang the NAB to get information about an investment loan. "I think the folder and contents are a monumental waste of paper, because of the format and because there is really no information in it that wasn't in the letter!" she writes.

This month's winning entry was sent in by BD of Allentown, Queensland: a glossy brochure about a computer printer which came extravagantly encased in a plastic tray covered with aluminium foil.

"I received this gem courtesy of the Compaq computer company," he writes, "who, incidentally, I have never had any dealings with. My guess is that I was placed on somebody's mailing list database after requesting a demonstration program disk. Compaq obviously don't have environmental concerns as their top priority. They clearly haven't scored another customer through this campaign!"

The use of aluminium foil in the package is particularly wasteful, as aluminium is very energy-intensive to make, and here it serves no purpose other than image-building.

We're pragmatic enough to realise companies are going to advertise their products in any way they see as viable, such as direct mail and attractive brochures. But we would put in a plea for promotional material that is less environmentally lavish than these examples.

While the money and resources spent on direct marketing put some consumers off-side, with others it must hit its target: apparently it is relatively successful at generating sales, compared to other forms of advertising. According to Greg Baker of the Australian Direct Marketing Association, it is also not as wasteful as it looks. By using a database, the advertiser can target those most likely to be interested in their product to receive the

promotional material. Compared to other forms of advertising, which use the scattergun approach, this creates much less waste, he says.

"If, for example, you put an ad in *New Idea*, a magazine with a print run of around a million copies, a million pages of that ad will be printed. As only a very small percentage — less than 1% — of people buying the magazine are interested in the product, you wind up with an incredible amount of waste. By switching to direct marketing you can zoom in on those most likely to buy, so reduce the number to, say, around 10 000. Although direct

marketing looks elaborate, it only goes to a few people, so less impact is made on the environment."

We admit this 'target market' argument has some basis in logic (and *CHOICE* itself sometimes uses direct mail for this reason), though we'd quibble at 10 000 brochures being described as "a few" — and that *New Idea* page will probably be printed anyway. The type of direct mail package is more what concerns us — for example, does everything have to be printed on such glossy high-quality (and almost certainly not recycled) paper?

From the advertiser's point of view at least, using good-quality paper is not as 'wasteful' as it might seem. A recent survey in the UK showed that people's biggest objection to direct mail is that they consider it a waste of paper. But other UK research comparing the difference in people's response to ads printed on 'quality' vs 'ordinary' paper found their response rates almost doubled if quality paper

was used. We might think we're environmentally aware, but our commercially conditioned reflexes still often get the better of our environmental ideals.

Thanks to all those who've sent in **Green Spotlight** entries — and keep them coming. We're interested in hearing about people or communities who've taken action on an environmental concern, as well as in good and bad products and practices, labelling claims, packaging and advertisements. Send them to: **Green Spotlight**, *CHOICE*, 57 Carrington Road, Marrickville 2204. Each month's winning entry will receive books from our Consumer Bookshelf to the value of \$25. Please include your telephone number with your entry.



Promotional gem — environmental extravaganza.



## WHAT DO YOU KNOW?

**1** Reverse-cycle air conditioners may be expensive to buy (between \$750 and \$1050 for one suitable for a medium-sized lounge room at our last check), but how much do they cost to run in an average year — say 500 hours of heating and 500 of cooling?

- A) \$105.
- B) \$120.
- C) \$150.

**2** If you have private health insurance and you're a private patient in hospital, what are you likely to have to pay out of your own pocket for doctors' fees?

- A) Nothing.
- B) Anything the doctor charges above the Schedule fee.
- C) Anything you request over and above what is considered essential.

**3** What percentage of Australian households contain only one or two people?

- A) 22%
- B) 33%
- C) 50%

**4** Which are the six most common culprits in food allergies?

- A) Hamburgers, milk shakes, chips, ice cream, bubble gum and popcorn.
- B) Oysters, caviar, smoked salmon, champagne, truffles and lobster.
- C) Milk, eggs, soy, wheat, peanuts and fish.

**5** What percentage of GDP was invested in roads between 1980 and 1990?

- A) 0.4%
- B) 1.7%
- C) 3.9%

**6** What's the average distance travelled per person per year by car in Australian cities?

- A) 5600 km
- B) 10 750 km
- C) 12 500 km

**7** What percentage of trips to work are done on foot or by pushbike in Australian cities?

- A) 5%
- B) 15%
- C) 25%

## ANSWERS

**1. A** — Calculated at about \$50 for heating and \$55 for cooling. This makes the reverse-cycle air conditioner a cheaper running option than an electric radiant heater, which would cost \$120 to heat only for 500 hours.

**2. B** — This applies whether you're in a public or private hospital.

**3. C.**

**4. C** — These six relatively common-place foods account for 90% of reactions in children with food allergies.

**5. B** — This compared with only 0.4% to 0.7% on rail.

**6. B** — 5600 km is the average in European cities, 12 500 the average in US cities. In Asian cities it's only 1800 km.

**7. A** — It's 25% in Asian cities, 21% in European cities.



## RECALLS AND BANS

If you find a recall or ban not on our list please let us know.

Akai has recalled **AKAI COLOUR TELEVISIONS**, 34 cm and 49 cm, made in 1988 and 1989, to check for soldering defects in the electronic circuit joints that could cause arcing, with the risk of serious damage. Call Akai on 008 803 737 to arrange inspection. Affected models are:

### Model CTK202

Serial No. range  
0181100001-0181101360  
0581100001-0581100680  
0680200001-0680201360  
0880200001-0880201030  
0980200001-0980201032  
1080200001-1080201374

### Model CTK207

Serial No. range  
0680500001-0680500544  
0980200001-0980200590  
1180300001-1180301181  
0191100001-0191100590  
0491100001-0491101180  
0691100001-0691100590

Serial No. range  
1180200001-1180201030  
1280200001-1280200687  
0191100001-0191100687  
0291100001-0291100687  
0490200001-0490201030  
0591100001-0591100687

Serial No. range  
0780500001-0780501180  
1080200001-1080200590  
1280200001-1280200590  
0291100001-0291100590  
0591100001-0591101180

Action Trampolines & Gymnastic Equipment has recalled the **SWING HANGER BAR** from a set of children's swings. The bar is yellow and has a flattened end for the glide and boatwing attachments. The tube is cracking where it has been flattened and punched. Do not use. Contact the company on (07) 390 5111 or (02) 756 1022.

A E Fawthrop and Melrose Laboratories have recalled all current Australian stock of **VICCO HERBAL TOOTHPASTE** as some batches have been found to contain contaminants. Dispose of toothpaste or return to retailer for refund. For further information call (03) 898 9571.

VSI Hardware has recalled **BUFFALO 240 VOLT SOLDER GUN** (pistol grip type) as it does not meet Australian Standards. Do not use. Return to retailer for refund.

ABC Enterprises has recalled **HUMPTY DUMPTY DOLL (PLAYSCHOOL CHARACTER)** as the nose is easily detached. Return to retailer.

### WARNING

Dog owners should watch out for old stock of the flea rinse **DYZON**. Though it hasn't been manufactured for two years now, some stock may still be in circulation and is believed to have degraded and become unsafe. Do not use. See *Choice Cuts* on page 5.



# PLEASE SEND US

■ change of address ■ renewal

■ subscription inquiries

Just write to:

The Subscription Section

Australian Consumers' Association

57 Carrington Road, Marrickville 2204.

or phone (02) 558 8088

# TWELVE MONTH INDEX

## MAY 1992 — APRIL 1993

(T) test

(D) includes assessment of suitability for those with disabilities

(F) feature — general advice

(M) feature — includes market information

(S) subscriber survey or user trial

(C) Consumer in law

(L) letter

(U) update of previous report

\* additions or corrections to reports

|                                 |                 |                               |               |                                |                      |
|---------------------------------|-----------------|-------------------------------|---------------|--------------------------------|----------------------|
| Abattoirs                       | Jun(F),Sep(L)   | Do-it-yourself and the law    | May(C)        | Meat production                | Jun(F),Sep(L)        |
| Air conditioners, reverse-cycle | Nov(T,D)        | Drained weight of canned food | Aug(T)        | Microwave ovens, small         | Jun(T,D),Aug*        |
| Air quality, indoor             | Jan(F)          | Economic jargon explained     | Oct(F)        | Mod-n-Aire gas heater          | Jul(F)               |
| Allergies                       | Nov(F)          | Electric frypans              | Aug(T)        | Money for travelling           | May(F)               |
| Answering machines              | Oct(T)          | Energy use in the home        | May(F)        | National and 'generic' brands  | Aug(F)               |
| Arthritis                       | Oct(F)          | Food                          |               | Network selling                | Jul(F)               |
| Audio equipment                 |                 | canned, drained weight        | Aug(T)        | Notebook computers             | Dec(T)               |
| car radio/cassette players      | Jun(T)          | cholesterol and oat bran      | Jun(F)        | Oat bran                       | Jun(F)               |
| CD players, multi-disc          | Mar(T)          | coffee bags                   | Oct(S)        | Orbital sanders                | Jun(T)               |
| Australian-made labelling       | Jan(F)          | frozen desserts               | Dec(T)        | Ozone layer                    | Aug(F)               |
| Bank accounts                   | Sep(M),Nov*     | fruit substitutes for kids    | Mar(T)        | Packaging, 'green'             | Jun(F)               |
| Barbecues, kettle               | Jan(T)          | irradiation of                | Aug(F)        | Pay TV                         | Oct(F),Feb(L)        |
| Beer, reduced-alcohol           | Apr(T)          | packaged meals for kids       | Feb(M)        | Pest inspections               | May(F),Jul(L)        |
| Bicycle helmets                 | Oct(T)          | yoghurt                       | Nov(T,F)      | Phone advice, legal            | Nov(C)               |
| Blenders, handheld              | Nov(T,D)        | Frypans, electric             | Aug(T,F)      | Phones                         | Jul(T,D),Oct(L)      |
| Breast cancer                   | Jan(F)          | Funerals, organising          | Sep(F)        | cellular                       | Jul(T,D),Oct(L)      |
| Buying guide, annual            | Dec             | Gas heater, Mod-n-Aire        | Jul(F)        | cordless                       | Dec(T,D)             |
| Cameras, compact                | Feb(T)          | Gas heaters, flued            | Apr(T,D)      | Pool fences                    | Dec(F)               |
| Carpets                         |                 | 'Generic' and national brands | Aug(F)        | Reclaiming stolen property     | Sep(C)               |
| spot cleaners for               | Sep(T)          | Goods and services tax        | Jul(F),Oct(L) | Recycling                      | Apr(F)               |
| stain-resistance treatments     | Nov(T)          | Greenhouse effect             | Oct(F)        | Reduced-alcohol beer           | Apr(T)               |
| Cars                            |                 | Hair and hair products        | Jan(F)        | Refrigerators, 300-350 litre   | Sep(T,D)             |
| child restraints                | Apr(M)          | Handheld blenders             | Nov(T,D)      | Reliability survey, cars       | Aug(S)               |
| clamping and tow-away           | Feb(C)          | Health insurance              | Nov(M)        | Retirement villages            | May(F)               |
| insurance                       | Dec(S)          | Heaters, gas flued            | Apr(T,D)      | Reverse-cycle air conditioners | Nov(T,D)             |
| radio/cassette players          | Jun(T)          | Helmets, bicycle              | Oct(T)        | Safety switches                | Jul(F)               |
| reliability survey              | Aug(S)          | Home, chemicals in the        | Sep(F)        | Sanders, orbital               | Jun(T)               |
| steering wheel locks            | May(T,D)        | Hormone replacement therapy   | May(F)        | Savings plans                  | Mar(F)               |
| CD players, multi-disc          | Mar(T)          | Household energy use          | May(F)        | Secateurs                      | Oct(S),Feb(L)        |
| Cellular phones                 | Jul(T,D),Oct(L) | Index, three-year             | Jun           | Sewing machines                | Apr(T,D)             |
| Chemicals in the home           | Sep(F)          | In-line skates                | Dec(T)        | Shade materials                | Jan(F)               |
| Child car restraints            | Apr(M)          | Indoor air quality            | Jan(F),Mar*   | Skates, in-line                | Dec(T)               |
| Cholesterol and oat bran        | Jun(F)          | Insulation                    | Apr(F)        | Spot carpet cleaners           | Sep(T)               |
| Clothes labelling               | Apr(C)          | Insurance                     |               | Standards Australia            | Dec(F),Feb(L)        |
| Coffee bags                     | Oct(S)          | car                           | Dec(S)        | Steering wheel locks           | May(T,D)             |
| Complaints against lawyers      | Jun(C)          | health                        | Nov(M)        | Stolen property, reclaiming    | Sep(C)               |
| Computer printers               | Mar(T)          | Irradiation of food           | Aug(F)        | Sun protection                 | Jan(F)               |
| Computers, notebook             | Dec(T)          | Jargon, economic              | Oct(F)        | Superannuation guarantee       | Feb(F)               |
| Cordless phones                 | Dec(T,D)        | Labelling, Australian-made    | Jan(F)        | Supermarket survey             | Jul(S)               |
| Cosmetics, animal testing       | Mar(M)          | Labelling, clothes            | Apr(C)        | Tax, goods and services        | Jul(F),Oct(L)        |
| Credit cards                    | Feb(F)          | Lawyers, complaints against   | Jun(C)        | Tax, rights and obligations    | Mar(C)               |
| Desserts, frozen                | Dec(T)          | Legal advice, by phone        | Nov(C)        | Telecommunications             | Feb(M)               |
| Detergents, laundry             | Mar(T)          | Lost wallet, what to do       | Aug(C),Nov*   | Travel money                   | May(F)               |
| Dishwashers                     | Feb(T,D)        | Laundry detergents            | Mar(T)        | TV, pay                        | Oct(F),Feb(L)        |
|                                 |                 |                               |               | TVs, medium-sized              | Jul(T,D)             |
|                                 |                 |                               |               | TVs, portable                  | Apr(T,D)             |
|                                 |                 |                               |               | Unit pricing                   | Sep(F)               |
|                                 |                 |                               |               | Vets' fees                     | Nov(F),Jan(L),Feb(L) |
|                                 |                 |                               |               | Video recorders                | Mar(T)               |
|                                 |                 |                               |               | Wallet, if you lose            | Aug(C),Nov*          |
|                                 |                 |                               |               | Washing machines               | Jan(T,D),Mar*        |
|                                 |                 |                               |               | Water filters                  | Feb(T)               |
|                                 |                 |                               |               | Yoghurt                        | Nov(T,F)             |